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October 2024
Vol. 74 No. 887

model Boats

HMS *Express*, Part 1

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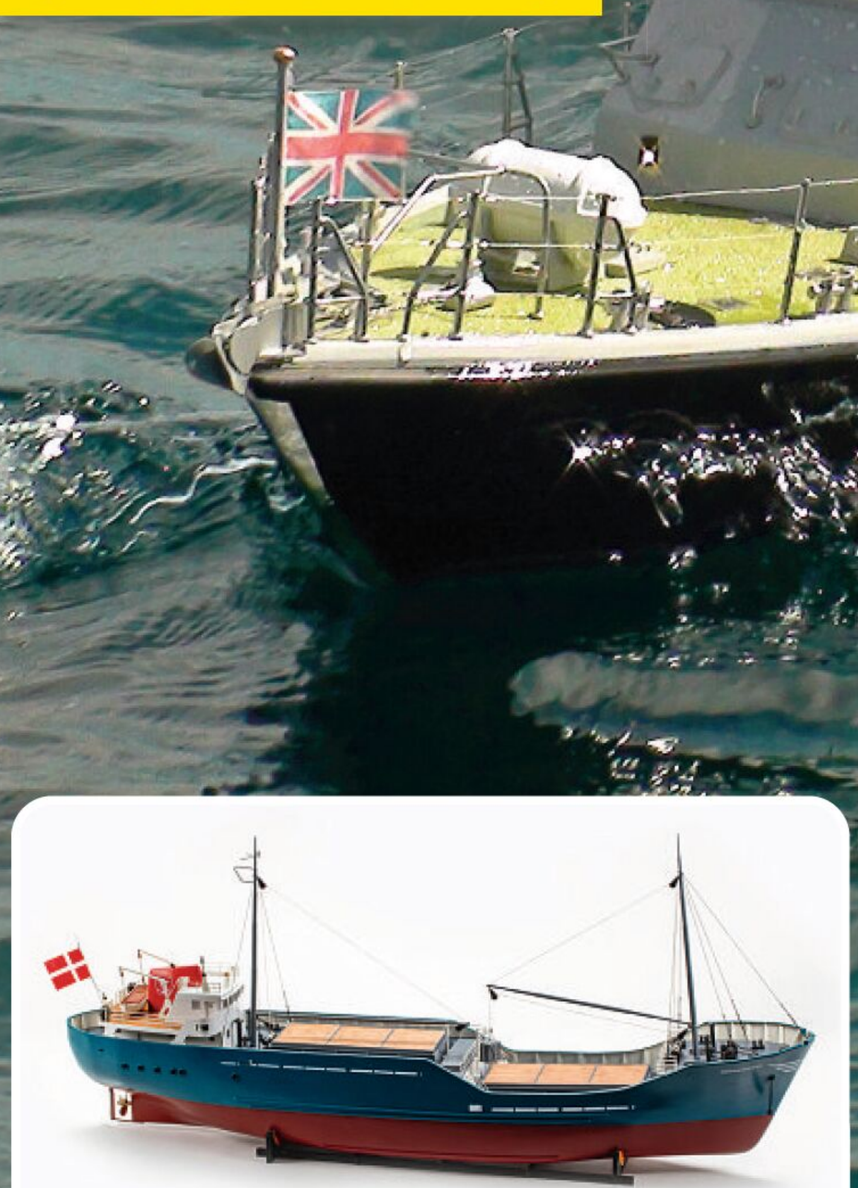
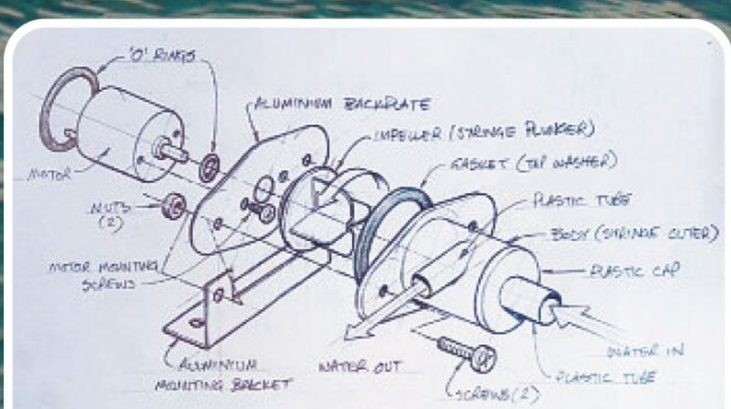


MS *Mercantic*

Billing Boats' newly updated cargo vessel kit reviewed

Chieftain challenge

This paddle-powered Tyne tug tackled



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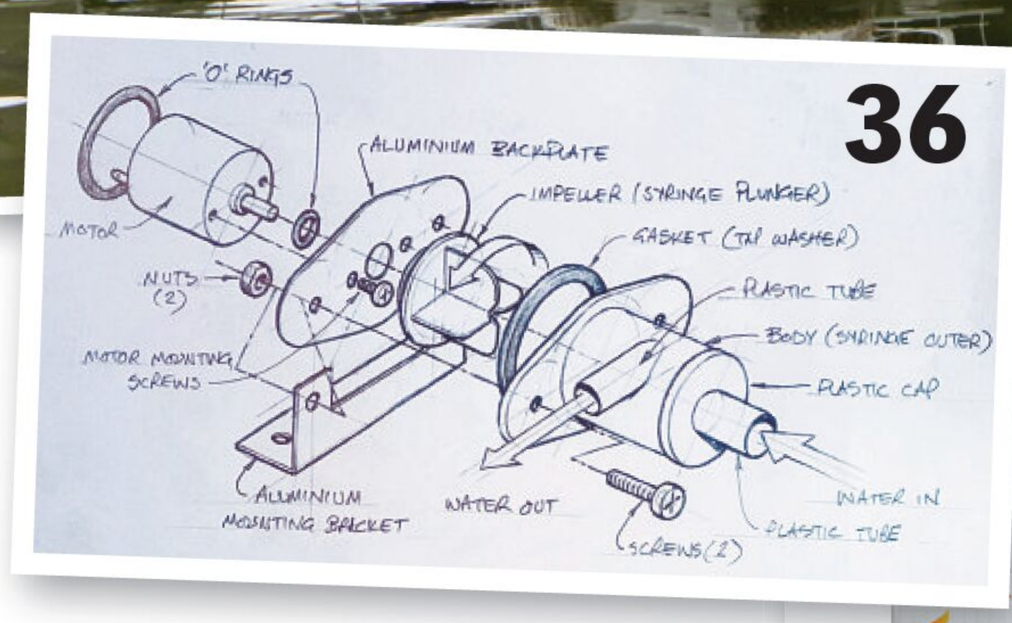

WELCOME TO THE OCTOBER 2024 ISSUE OF MODEL BOATS...

As summer nears its end in the Northern hemisphere, I imagine most of you will soon be spending a lot more time building, restoring or converting than you will sailing – so, the exclusive prize draw we're running in conjunction with Humbrol this month probably couldn't be better timed. As you will see, we've got a superb package of goodies from this much-loved brand up for grabs, with all the paint colours and weathering products included chosen specifically with the purpose of creating beautifully finished model boats in mind.

Now, I know entering prize draws/competitions always feels like a bit of a long shot and, taking that one step further, you may even have doubts about whether anyone actually ever wins anything (which I totally get, as, before working on magazines, I, too, was a sceptic). But I can absolutely assure you that all the draws run in this magazine are 100% genuine; and if you don't believe me, check out this month's Letters pages. Of course, it's pure luck whether your digitalised (at our end) entry form gets electronically selected, but it's worth pointing out that with a small, niche title like Model Boats the odds of this happening are, statistically speaking, surprisingly good.

£250 worth of Humbrol products is certainly going to prove a very handy haul for whoever lands this month's fantastic prize package – and it could be you. So, with plenty of inspirational projects featured on the pages ahead, good luck!

On the subject of content, I must apologise for jumping the gun a little by announcing the *Dolly* feature as 'Coming Next Month' in our September issue. *Mea culpa!* I'm still in the process of prepping this for layout but hope to have it ready for publication in the very near future. What I can guarantee, however, is that there will be a free pull-out plan and another exciting and exclusive prize draw in the November issue (on sale from Friday, October 18), so don't miss it.

In the meantime, enjoy your read,
Lindsey

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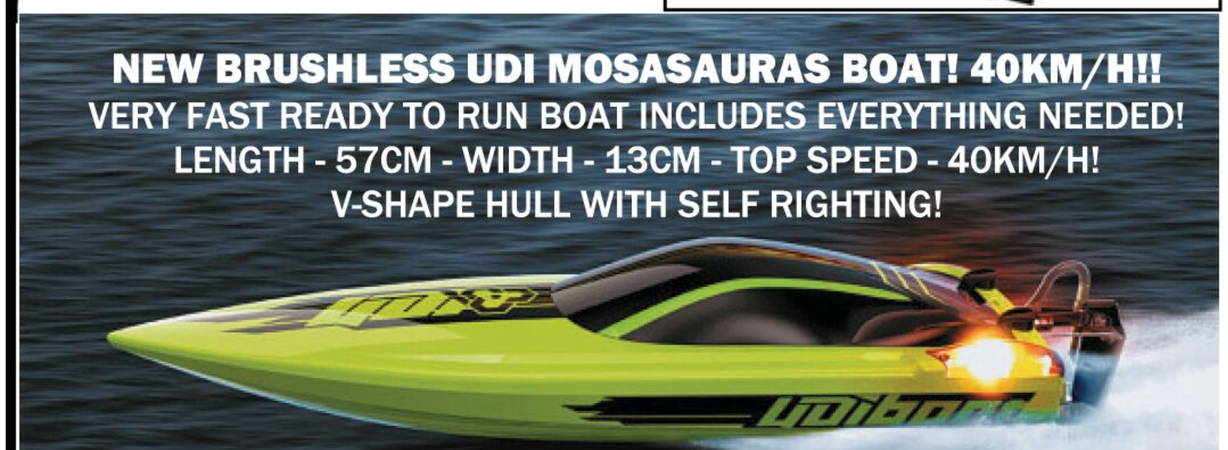

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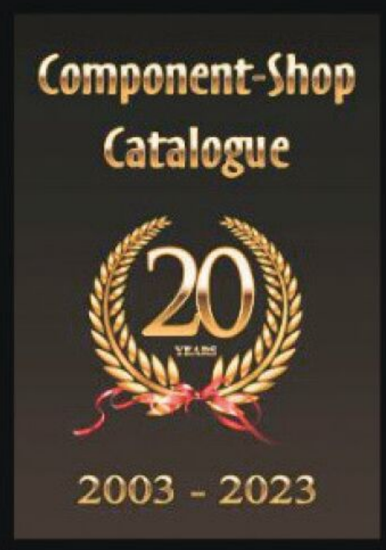
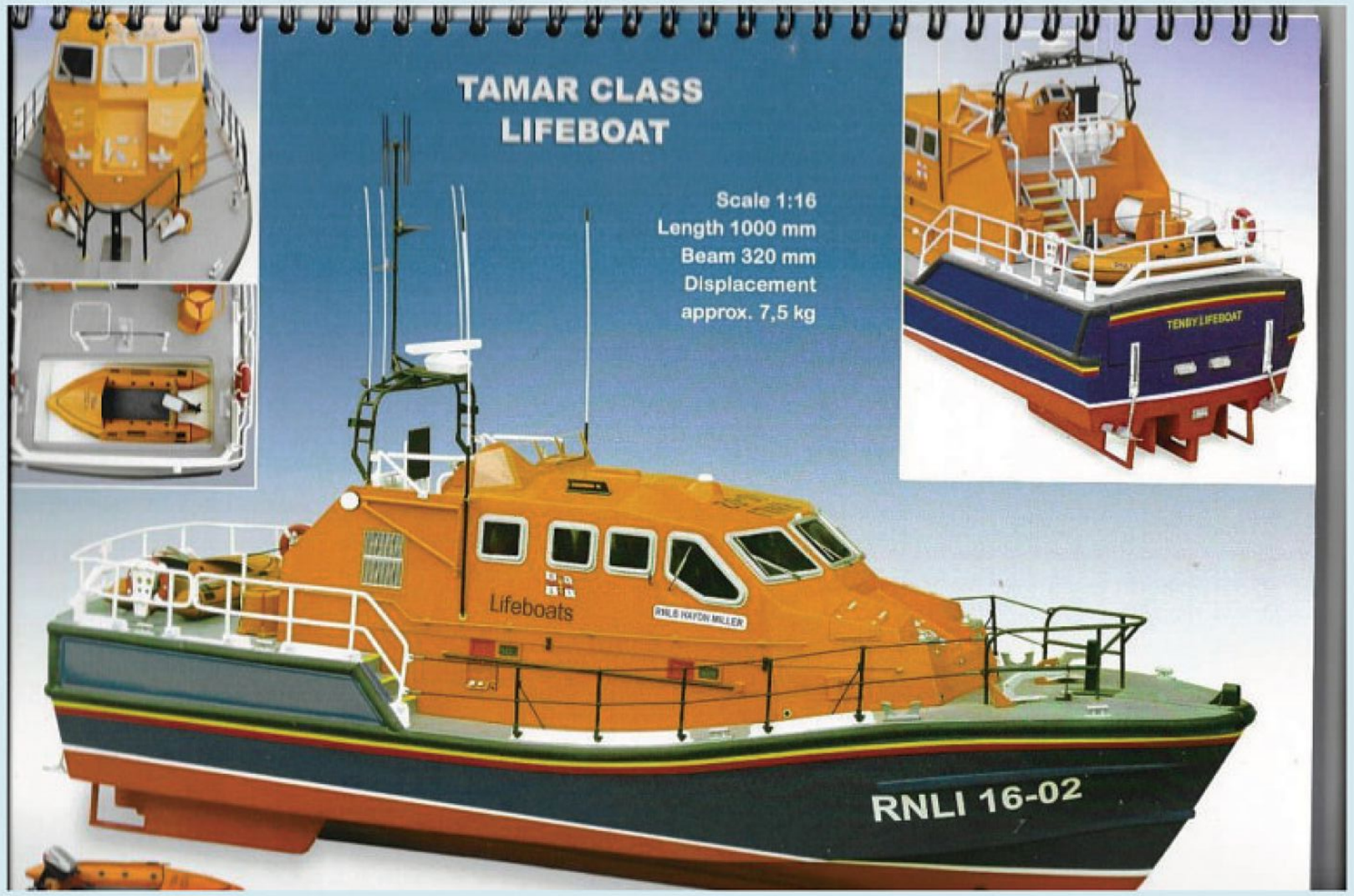


Tamar Class Lifeboat



The Tamar class lifeboat was introduced into the RNLI fleet in 2005. It was the result of several years of research and development to produce a virtually unsinkable slipway launched lifeboat; if it capsizes in will right itself within a few seconds.

The kit is to the usual high standards and includes building manual, GRP hull, other materials; CNC cut styrene decks and superstructure, full size plan, resin, and white metal fittings.

Compass 360

If you have a news story for these pages, please contact the Editor, Lindsey Amrani, via e-mail at editor@modelboats.co.uk

Coming soon from Billing Boats...

Billing Boats is currently updating and improving its 1:20 scale kit for the WSP 10 *Polizei* Patrol Boat, which will be marketed as a static model but has been designed with conversion to radio-control operation in mind.

The model is based on a vessel built at the Bodan Shipyard in Kressborn, Germany, and delivered on June 30, 1989, to the Harbour Police in Bayern. This is now stationed at Passau on the Danube and patrols an area stretching from the Austrian border and roughly 80 km upstream. Measuring 15m in length, with a 3.9m beam, it is powered by 300 HP MAN diesel engines, which give an approximate speed of 40 kph. Usually manned by a crew of two, the boat is used not only for normal police duties, but also for tasks such as surveillance, especially in connection with environmentally concerning or dangerous cargoes. As such, it is fitted with equipment such as radar, an echo sounder, automatic pilot, four radios and an explosion safeguard.

But there's more... Ahead of release, the ever-generous crew at Billing Boats has offered us a pre-production factory sample of this *sehr cool* kit to offer as a prize in next month's draw, so don't miss the November issue!

Ymer winner

In the August 2024 issue of Models Boats we were, courtesy of the kind folks at Billing Boats, able to offer you the chance to win a pre-production sample of the newly updated 1:60 scale kit for the tugboat *Ymer*. We are now delighted to announce the lucky entrant drawn as: **Gary Drain** of **Wallasey, Merseyside**. Congratulations, Gary!

Colin Laugharne remembered

The magnificent Roy Charles, as built by the late Colin Laugharne.

We are sad to report that contributor Colin Laugharne (whose feature detailing the scratch build of his North Atlantic tug, the Roy Charles, appeared in last month's issue) has passed away. Colin proved a joy to work with, and we would like to extend our sincerest condolences to his wife, Shirley, and all those who were closest to him.

OUT AND ABOUT

The Midlands Model Engineering Exhibition

The 2024 Midlands Model Engineering Exhibition, scheduled for Thursday, October 17 through to Sunday, October 20, will once again be hosted by the Warwickshire Exhibition, near Leamington Spa. Doors will open from 10am to 4.30pm on Thursday-Saturday, and from 10am to 4pm on the Sunday, with tickets (valid for any one day only) priced at £13 for adults, £12 for Senior Citizens and £5 for children (aged 5-14). These can be booked in advance online at www.meridienneengineering.co.uk.

Over 30 clubs and societies, displaying hundreds of exhibits covering a wide range of modelling skills, and nearly 40 of the leading model engineering specialist trade suppliers, have confirmed their attendance. The Society of Model and Experimental Engineering will also be present, showcasing a range of its famous models and providing practical workshops and demonstrations, while, once again, our sister title *Model Engineers' Workshop* magazine will be hosting *The Model Engineers' Workshop Lecture Programme.*

There will be 16 different free to enter display and competition classes, open to those of all ages and skill levels, and entry forms can be downloaded from the website at www.midlandsmodelengineering.co.uk. Prizes for 1st, 2nd and 3rd in the competition classes will be awarded by the judging panel on Thursday, October 17, with an awards ceremony taking place on Sunday, October 20. Those entering a model into the competition or for display will also be given free admission to the exhibition itself on these two days.

MIDLANDS MODEL ENGINEERING EXHIBITION

The North West Ship Show

From 11am to 4pm on Sunday, September 21, Old Christ Church in Waterloo Road, Liverpool L22 1RE, will play host to the North West Ship Show, sponsored by the Merseyside branch of the World Ship Society. There will be a wide array of maritime related models, collectables, books, photos, etc, to browse and buy. Entrance will be charged at £3 for adults, with accompanied children under the age of 12 admitted free of charge For further details, call Dave Crolley on 01942 211147 or email him at davec.ships@gmail.com

Museum of Power Model Show

From 10am to 3pn on Sunday, October 6, the Museum of Power in Hatfield Road, Langford, Maldon CM9 6QA will be hosting a model show, with model boats, model railway layouts and a whole host of other transport in miniature models exhibited. Visitors will also be able to take rides on the Langford and Beeleigh Miniature Railway (£2 for adults, £1 for children), wander around the Astaria Model Village and along the riverbank in the lovely grounds, and take refreshments in the Steam Pump Tea Room. Admission will be charged at £9 for adults (with concessions). For further details, visit www.museumofpower.org.uk

2024 Blackpool Model Boat Show

This year's Blackpool Model Boat Show, scheduled for October 19-20, will once again be held at the Norbreck Castle Hotel, Queen's Promenade, Blackpool, Lancashire FY2 9AA. Doors will open from 10am to 4pm on the Saturday (Oct 19) and 10am to 3pm on the Sunday (Oct 20).

On the door admission will be charged at £9 per day or £14 for a weekend pass. Savings can, however, be made when booking tickets in advance *online, where those wishing to make a weekend of it will also find details of special hotel and show package deals. The hotel boasts over 800 parking spaces and easy wheelchair access to the ground floor over which the show will be laid out.

Although always very popular with, and well supported by, clubs, individual exhibitors and those in the trade, tables are, currently, still available and can be reserved by completing an *online booking form.

*Visit http://www.blackpoolmodelshow.co.uk for further details.

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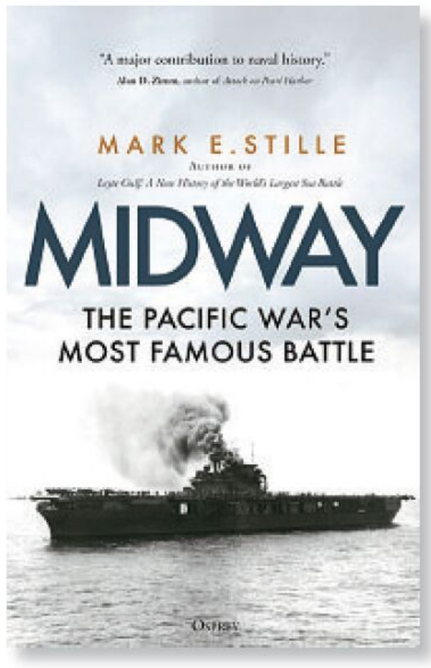
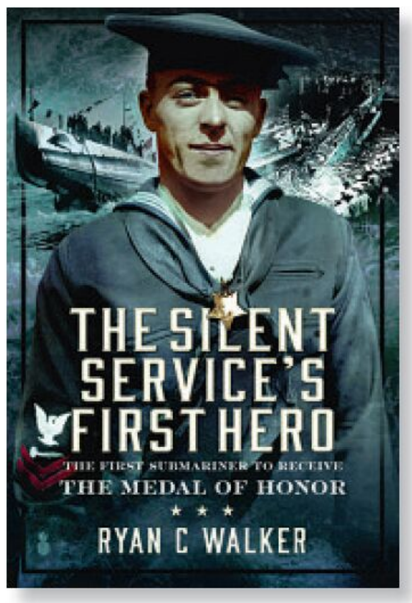
Midway: The Pacific War's Most Famous Battle



In this new book, author and naval historian Mark E. Stille sets about dispelling the myths that surround the Battle of Midway. The traditional view, popularised in the immediate aftermath of what is now regarded as one of the most significant naval battles in the Pacific during World War II, has long been one of a heavily outnumbered American force miraculously snatching victory in the face of overwhelming odds. By re-examining the plans, personalities, doctrines, ships and weapons (on both sides), however, Stille makes a compelling case for a Japanese defeat having been the more likely outcome.

Published in hardback format under ISBN 9781472862068, and carrying an RRP (Recommended Retail Price) of £25, orders for this title can be placed with your local bookstore. A 10% discount, however, is currently being offered on both hard copies and eBook downloads when purchasing online at www.ospreypublishing.com.

The Silent Service's First Hero



Penned by Ryan C. Walker, who himself served as a submariner in the United States Navy from 2014-2019, this newly launched title delves deeply into the life and service of Henry Breault, who, in 1924, became the first, and only, enlisted submariner to receive the Congressional Medal of Honor. Working from official military documents and various other sources of historical information, the author marries fact with analytical observation to provide a fascinating and thought-provoking exploration of the life, both onboard and ashore, of submariners from the 1920s through to 1941.

Published in hardback format, the book carries an RRP of £25 and can be ordered through all good bookstores when quoting ISBN 97810 3610 0414. A generous 20% discount, however, is currently being offered online at www.pen-and-sword.co.uk

MS *Mercantic*

Nick Brown provides a hands-on build review of this recently updated 1:50 scale cargo vessel kit from Billing Boats

Billing Boats always has an interesting selection of kits in its catalogue and over the years I've built several of the models in its range. So, having been first alerted to the fact the *Mercantic* (Ref. BB424) was being retooled by a news story featured in Model Boats back at the tail end of last year, I was, when offered the chance by our editor to review this latest version, foaming at the mouth to get started. Why? Well, because vessels like this instantly trigger a wave of nostalgia for me. I should, therefore, perhaps begin with a bit of background…

A potted history

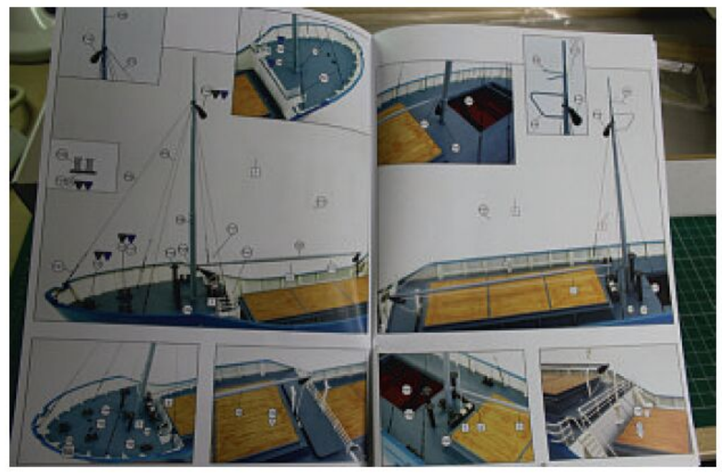
For those not knowing much about this vessel, MS *Mercantic* was built in 1964 by H.C. Christensens Staalskibsværft in Denmark. Ordered by Per Henriksen, she became the Mercandia Shipping Lines' first ship. A traditional freighter of her era (1960 to 1990s), *Mercantic* was 48.01m in overall length, with a beam of 9.10m, and powered by a B&W/Alpha 405-24VO diesel engine propelling her to 10 knots. She was a very successful vessel, being sold and renamed several times; however, in 2004 she was sold to the Wade Group based in the Dominican Republic, who operated her under the name of *Love Divine*. Sadly, she ran aground on August 22, 2012, in the West Indies and was declared a total constructive loss.

Kit inspection

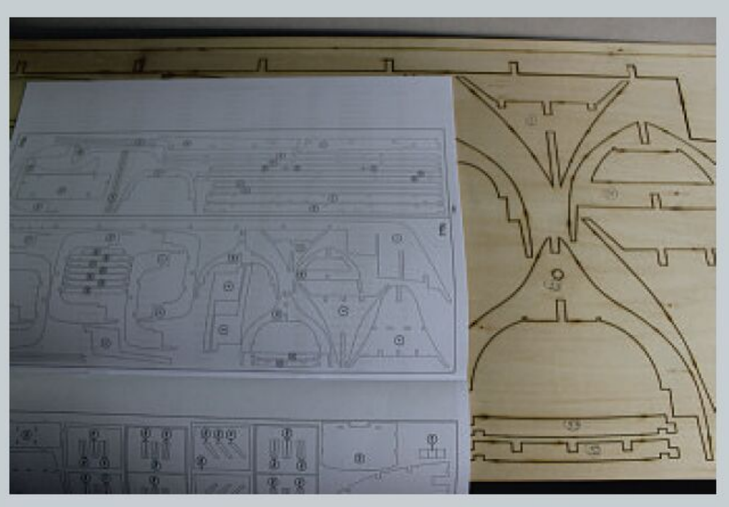
The Billing Boats' kit, which comes presented in a large, beautiful, glossy box, is scaled to 1:50, making the resulting model a decent sized representation of the *Mercantic*: 96cm long, 18cm at her beam and 36cm tall (or in other words, she will comfortably fit on the backseat of an average car).

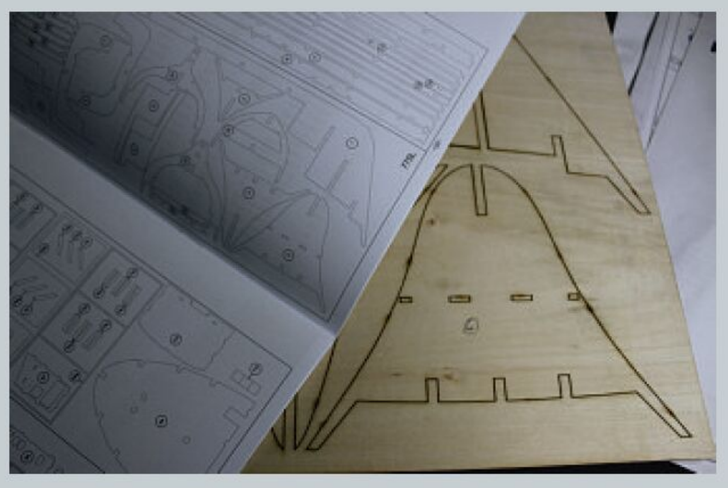
Of plank-on-frame construction, this kit features a laser-cut plywood keel and frame components, with a wooden superstructure and decks. Deck fittings come in wood, brass and plastic, and rigging cord in various sizes, a prop shaft, rudder and a brass propeller are all supplied. I've always been particularly impressed by the high-quality fittings packs Billing Boats' kit come with, especially the turned brass items, which I use on many of my scratch-built models when made available to purchase separately.

The box also contains a booklet recounting the history of the



A typical double page spread from the full-colour pictorial instruction manual.





The parts identifier in the manual will direct you to the relevant laser-cut plywood sheet. Nick then uses a pencil to mark each of the individual pieces on these sheets with their respective numbers.

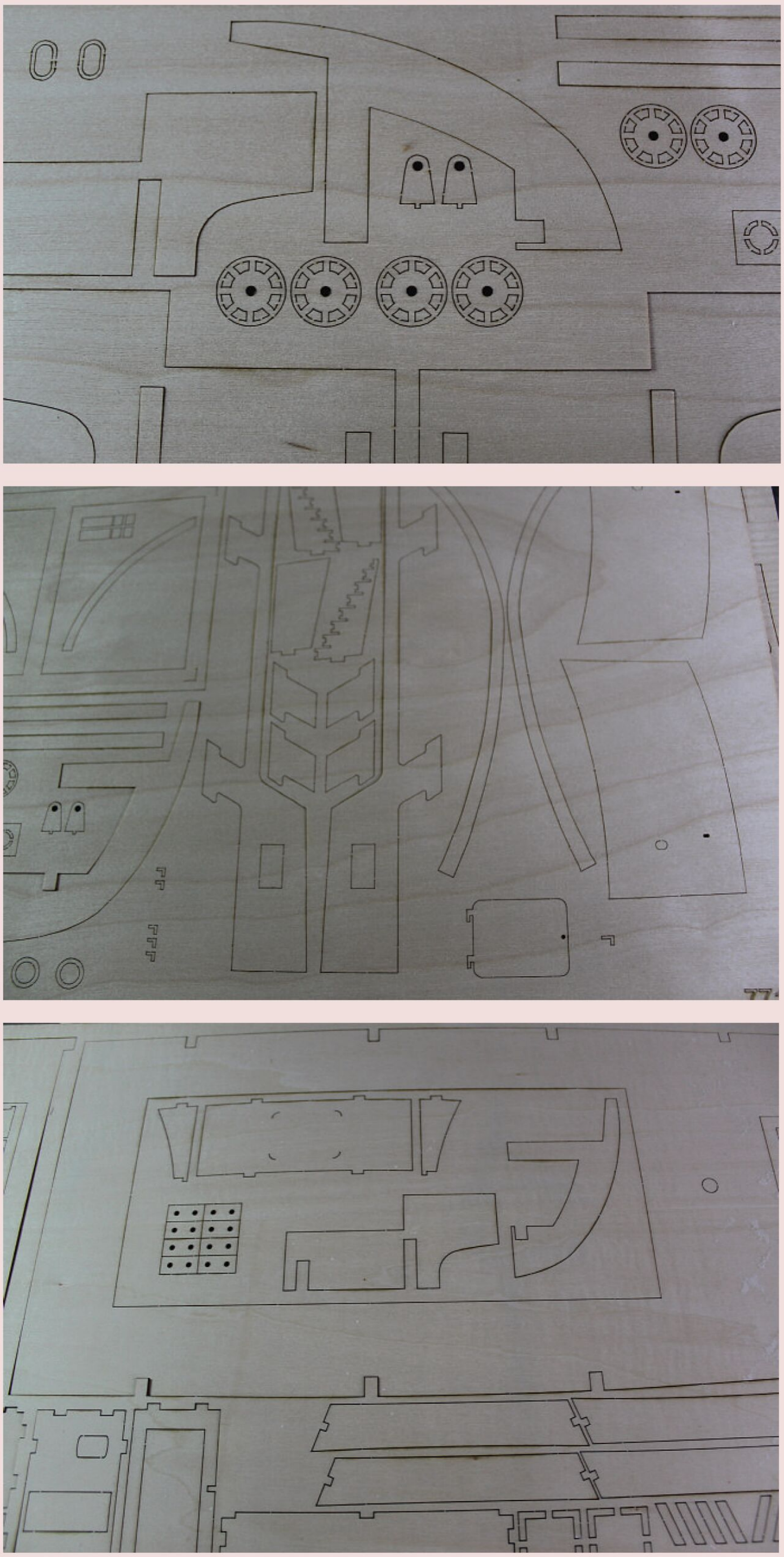
The goodies within the box, including the gift of the woolly hat that comes with the first 100 kits.

Mercantic, a full-size plan sheet and an instruction manual (in English). That said, some previous experience with model boat construction is likely to be required, as the instructions take a certain level of know-how as a given.

"This 'static' kit has been designed with the capacity for radio-control, facilitated by features such as removeable hatches and a removeable an 'engine flat' upon which to sit a motor, ESC, radio equipment and battery"

The fittings pack, containing all the brass turned items. The box size is deceiving, as it is crammed full!

Likewise, while this 'static' kit has been designed with the capacity for radio-control, facilitated by features such as removeable hatches and a removeable an 'engine flat' upon which to sit a motor, ESC, radio equipment and battery, the manual offers no advice on how to fit these items.



Just some of the detail that is created with the laser-cut items.

Pushing the boat out

Most of the hull structure, including the keel and frames, is constructed from laser-cut plywood. Forgive me if I'm preaching to the converted, but I must issue a word of warning here: never be tempted to simply push wooden laser-cut parts out from the supporting frame surrounding them. This not only risks the parts being damaged but will also incur unnecessary clean up. Instead, use a sharp hobby knife on each knub and then gently push out.

One little thing I did notice with one of the plywood sheets in my *Mercantic* kit was that it appeared the laser used to cut it was perhaps operating at too high a temperature, as some of the material was blackened more than usual and the glue had de-bonded slightly.

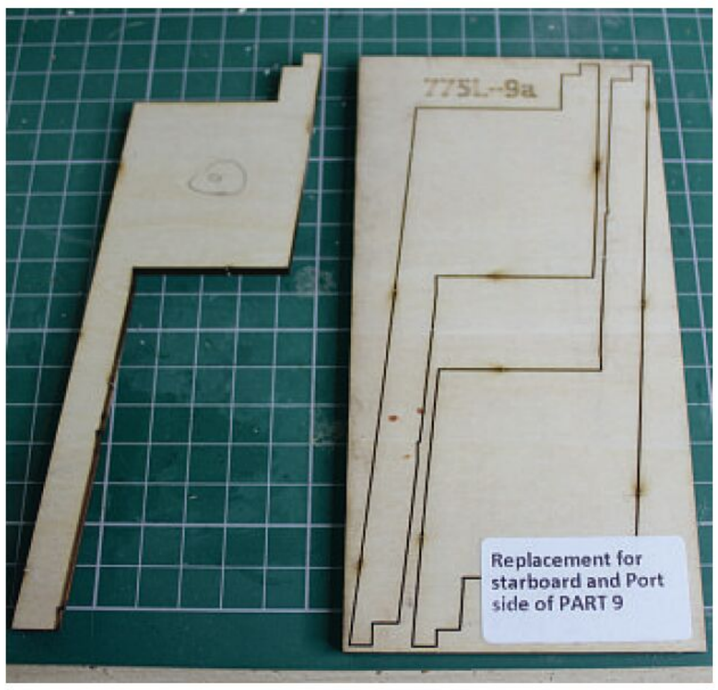
It's important to note that Billing Boats has included a sheet of corrections relating to the parts that need to be used during the build process with this updated version of the kit. This gives an indication of which parts should be discarded due to experiences learnt during the redevelopment phase. The replacement laser-cut parts are supplied in a separate bag inside the box and are simple one-for-one swaps.

"It's important to note that Billing Boats has included a sheet of corrections relating to the parts that need to be used during build process with this updated version of the kit"

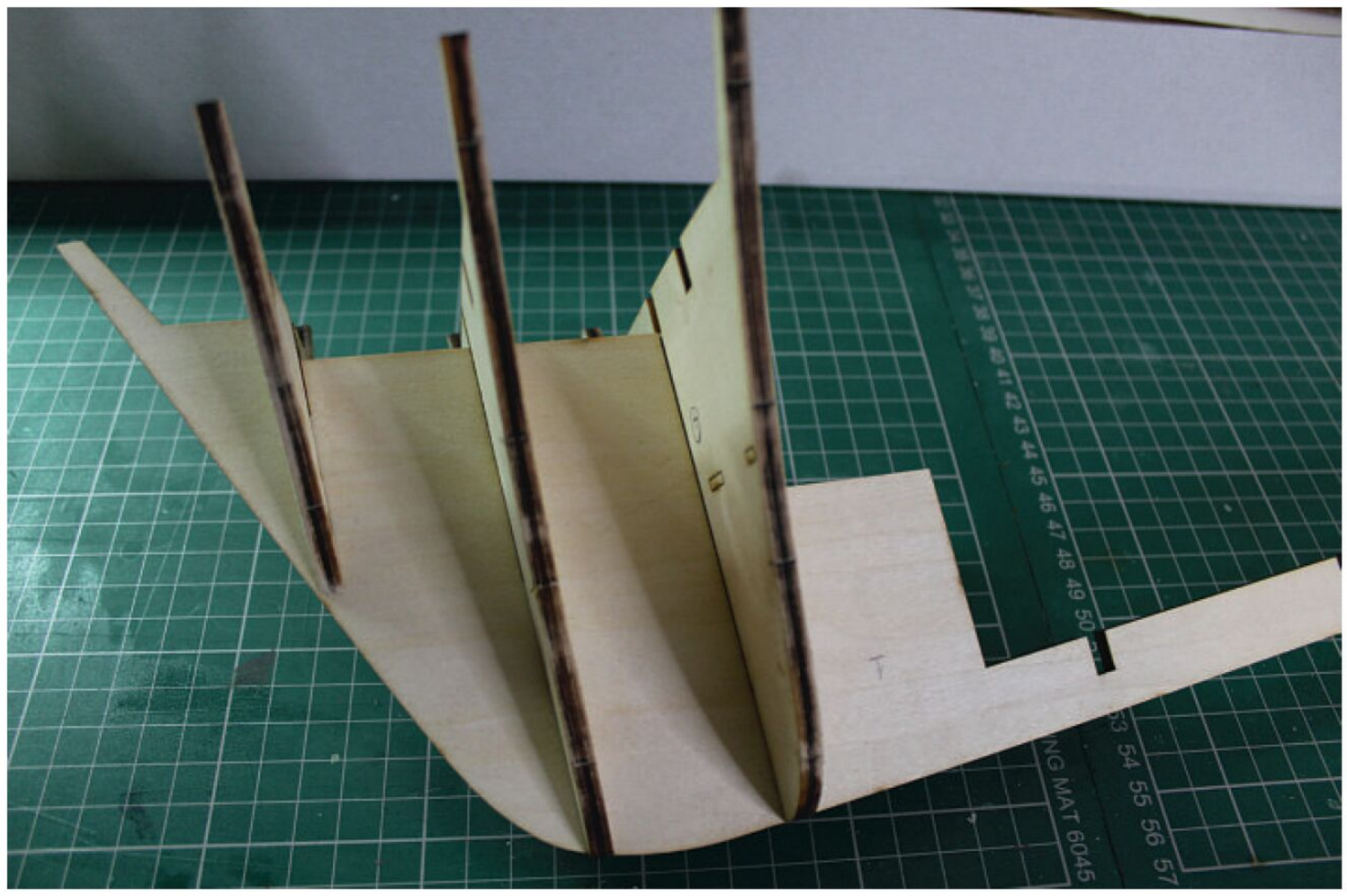
Personally, over the years I've got into the habit of first labelling all wooden parts using the instruction manual parts identifier. This reduces the amount of time spent searching for each of the individual parts required for whatever section of the kit you happen to be working on, thereby allowing you to simply concentrate on the build. I also recommend trial fitting everything before committing to glue

The hull

The *Mercantic*'s keel sections and frames are the first parts that need to be removed and assembled. I must admit I found the assembly of the keel section (which is built up from four layers of plywood) and stern frames (which incorporate the rudder post and prop shaft) a bit of a nerve wracking, as I was concerned I might

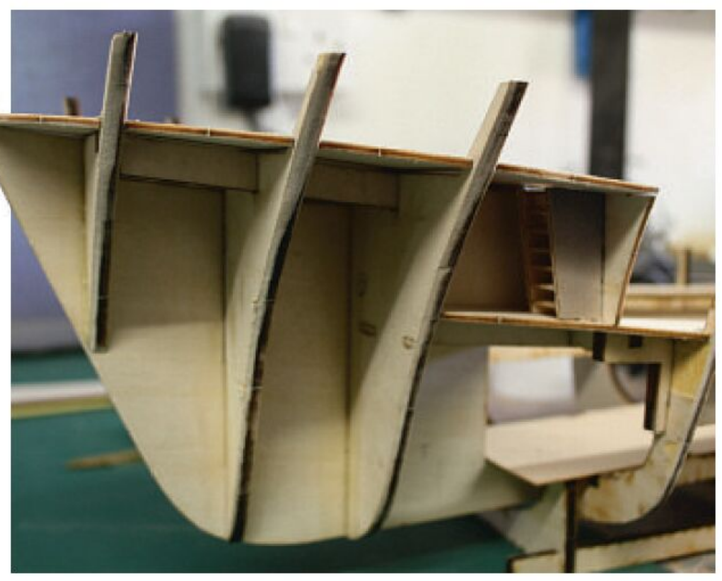


It's important to note that you'll find a correction sheet in the box. This explains which of the original (but still included) parts should be discarded and which of the replacement parts provided should be used instead.



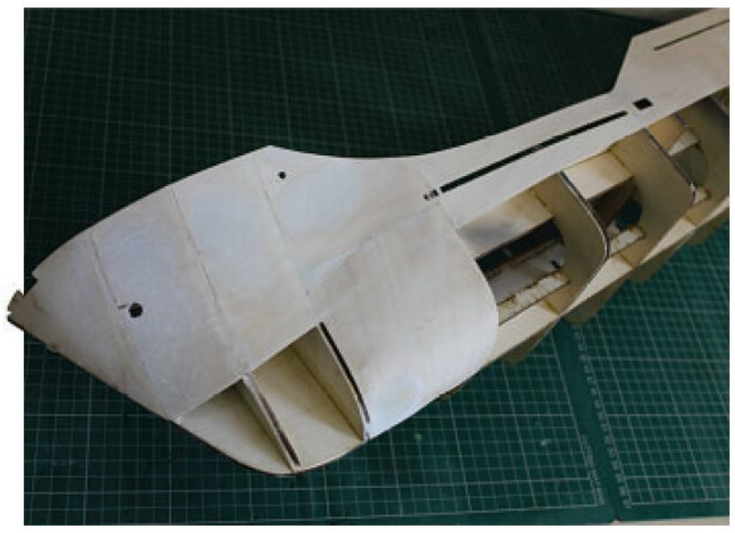
The keel and frames are laser-cut items, which effortlessly slide and lock beautifully into each other.

The completed skeleton of the model ready for the next phase (hull plating and planking), with the big, sturdy box for the kit seen to the fore.



Nick feels this kit is best suited to those with some prior building experience, but he reassures, some filing action to create a tapered edge is all that's needed to ease plate fitment.

Assembly of the stern section requires a little more patience and care to be taken; the end result, however, serves as a good, strong support structure for the hull plates.



The forward hull plating requires virtually no modification to fit and incorporates the scuppers and anchor holes.

snap something while trying to slot the keel section into the upright frames. Fortunately, however, this achieved without any damage done.

All the rest of the laser-cut parts follow a logical order of construction and lock positively into each other, creating a rigid structure to lay the plating and planks onto.

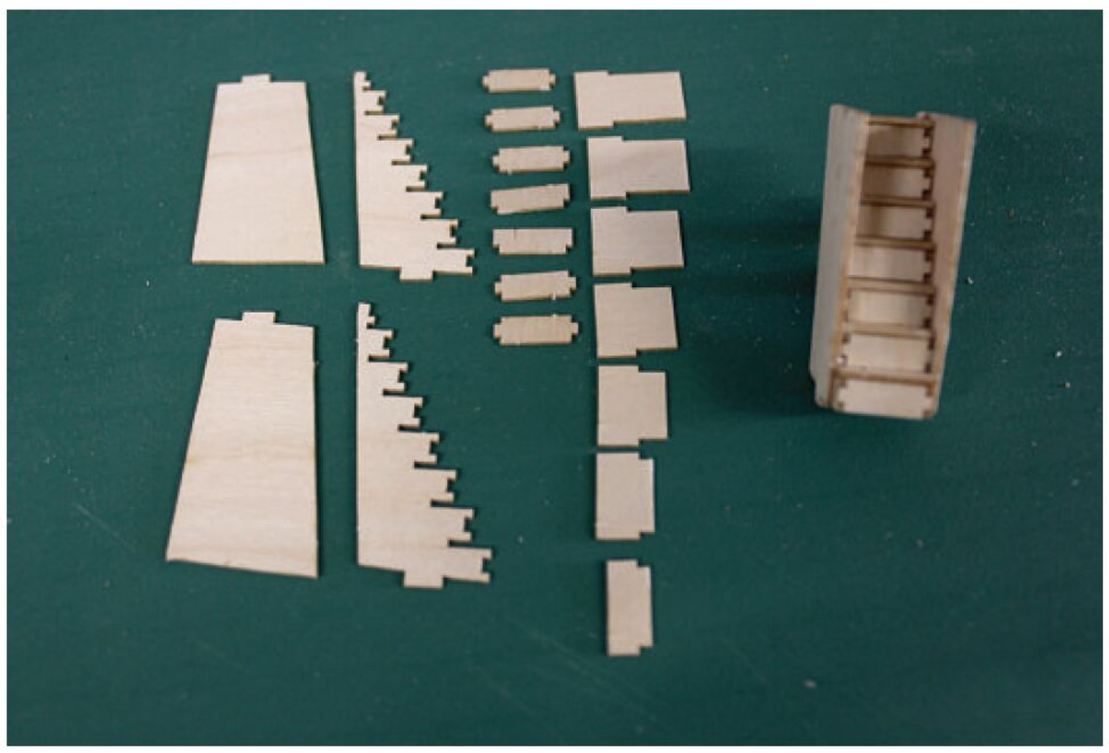
The two sets of steps that lead to the foredeck are built up from individual steps. I had thought these would be very difficult to assemble but I was pleasantly surprised by the speed at which they could be made.

The only modification after my trial fit was the filing down of the upper rail on the step sides to fit beneath the deck area; their inclusion and how they fit into the hull structure is a make or break in my opinion, but Billing Boats has created a winner in design for this feature.

"Billing Boats has created a winner in design for this feature"

Planking is completed using the Obechi wood strip supplied. If you start below the plywood bulwark plates and continue towards the keel, you should have no problems, Nick points out.

Success! Nick's second application of 'Mediterranean blue', courtesy of a Halford's rattle can. Unfortunately, his first 'finish' proved unexpectedly disastrous due to a nasty reaction between his original choice of paint and primer.



Assembling the situated forward ship's stairs may initially look daunting but they are, in fact, surprisingly simple to put together and represent those on the original vessel extremely well.

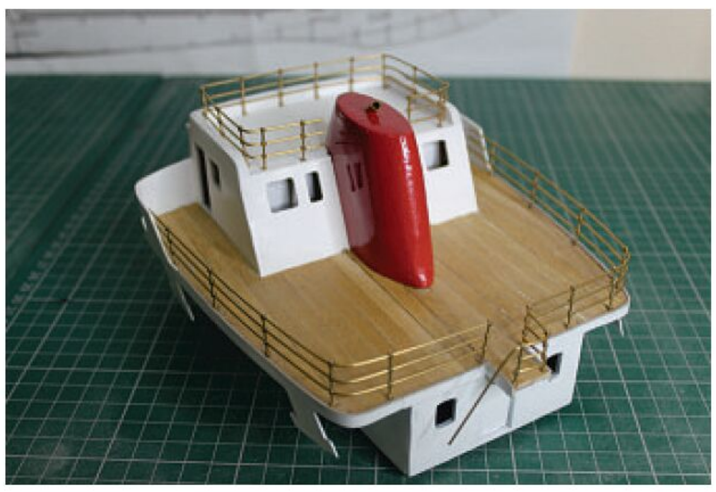
The bridge section is an all-plywood affair, but Nick admits he found it a struggle to make the front plate conform to the curvature.

The decks neatly slide over the bulwark supports; I suggest using clamps to hold them down and keep the camber curve that is designed into the kit. A little bit of wood filler is required to blend the deck around each of the bulwark supports.

The instructions state that the deck and frames should be painted at this stage, but I decided to postpone doing so; first I wanted to ensure I had a good sealed up hull as if I did decide to install R/C I could then be sure the model was watertight.

As previously mentioned, the instructions do not suggest any model making tips or notes on construction methods, so it's up to the builder to draw on previous experience when it comes to tapering the hull frames so that the hull plywood sheets fit more easily. These sheets, however, don't require much trimming to fit onto the frames, and the bulwark scuppers are pre-cut. I started at the bow and worked my way towards the stern using superglue-type cyanoacrylate to attach each plate in turn.

The funnel comes supplied as a balsa block that needs to be carved and filed to shape. There is a template in the manual to refer to, but Nick highly recommends using the plans as additional guidance.

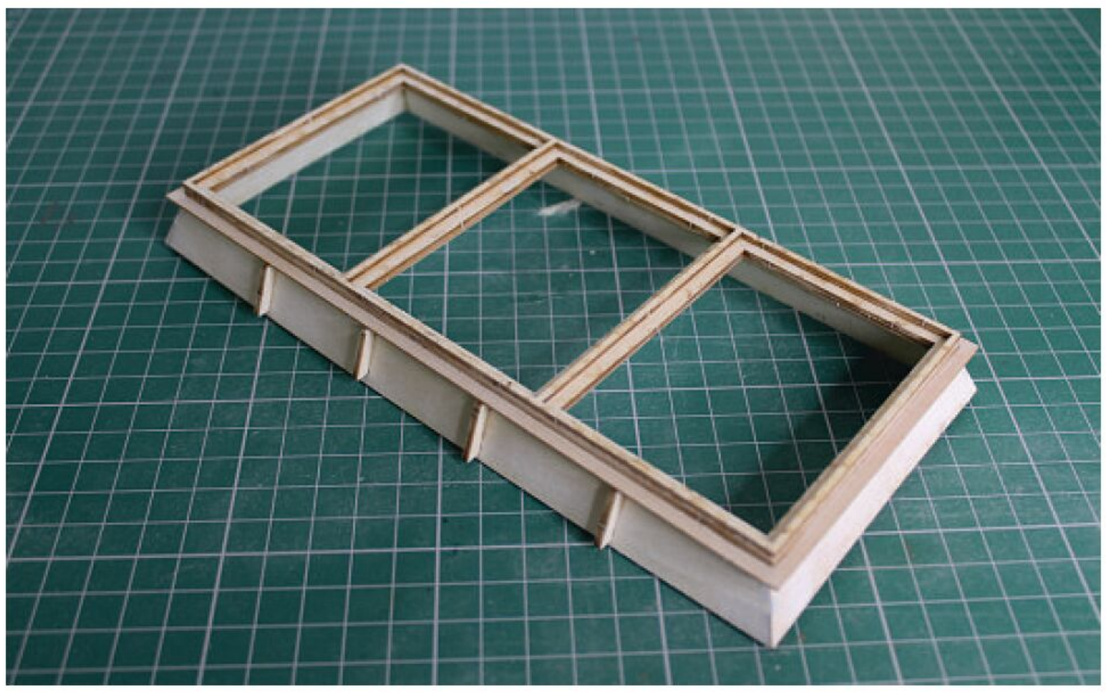


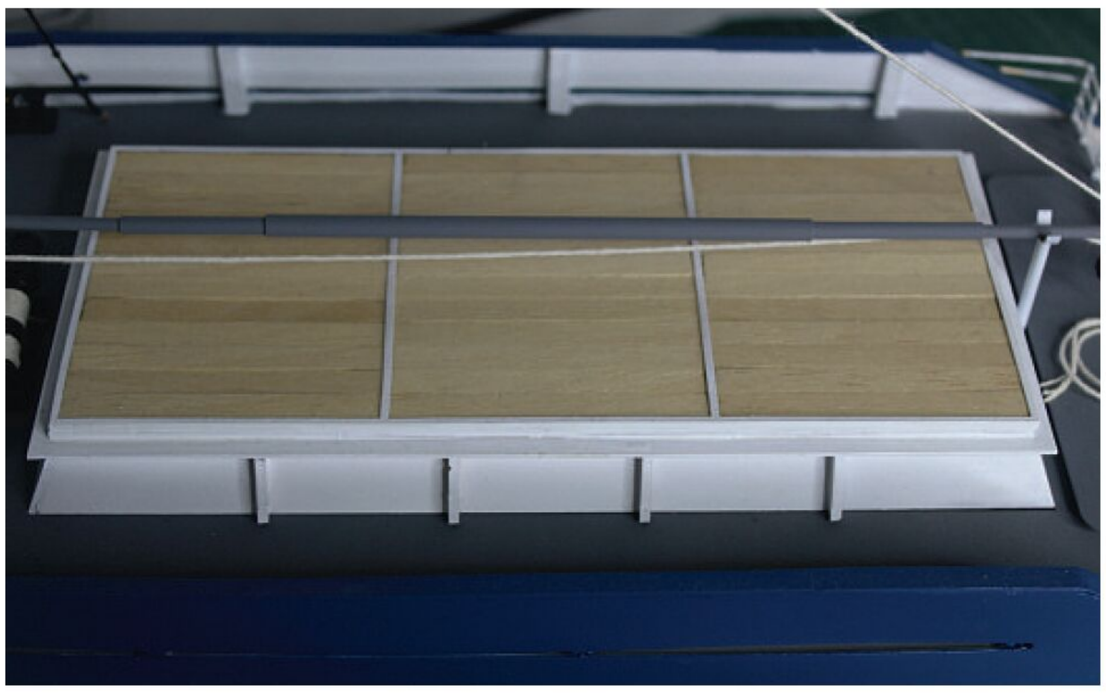
The basic structure of the bridge and funnel complete. Handrails are started to be fitted around the bridge wings and these add another layer of finesse.

Once both sides are complete, the next phase is to plank the sections not sheeted in by plywood. Planking is provided as obechi strip, and there are more than enough extra pieces included to ensure you're not left with any gaps, but this is another task that requires some prior experience. I started at the waterline and planked towards the keel on each side. You'll notice that the obechi is thicker than the plywood plating, but actually this is a good thing, as the planks do require sanding down to blend them into the hull.

The stern is made up from a massive block of balsa which, again, requires sanding to shape in order to achieve its rounded rear profile.

My suggestions for the next stage depend on whether you intend to create a static model or a functioning on the water hull. For the former, you can





The cargo hatches, a key feature of this coaster freighter's design, are imaginatively created using laser-cut plywood to build up fantastically convincing replicas.

just apply filler and sand before painting your hull. I, however, decided to apply a layer of fibreglass cloth to seal mine – a necessity should I later opt to go down the radio-control route.

The bulwark capping I applied using the thin plywood pre-cut sheet, and my hull was then ready for paint – or was it? This is where I come to my first criticism, or perhaps *caveat*: in the photos illustrating the instructions the rubbing strips and bilge keel strips aren't easy to see, and I almost missed them – I'd already given my hull a coat of grey primer before realising I hadn't fitted these.

The comprehensive diagram in the manual illustrates how the masts and derricks are made up of interlocking brass tubes, thereby creating strong and rigid lengths.

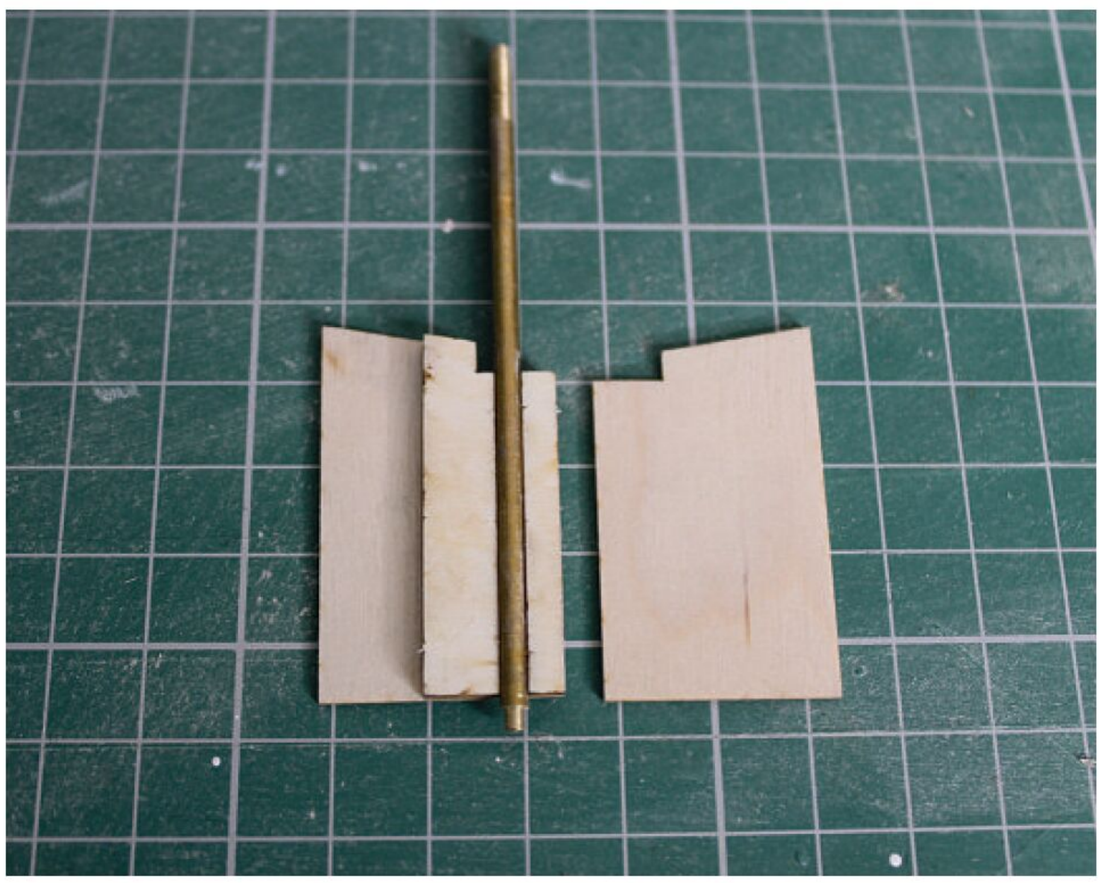
"Regular readers will be aware that this review had been flagged up for an earlier issue, and we now come to the reason for the delay…"

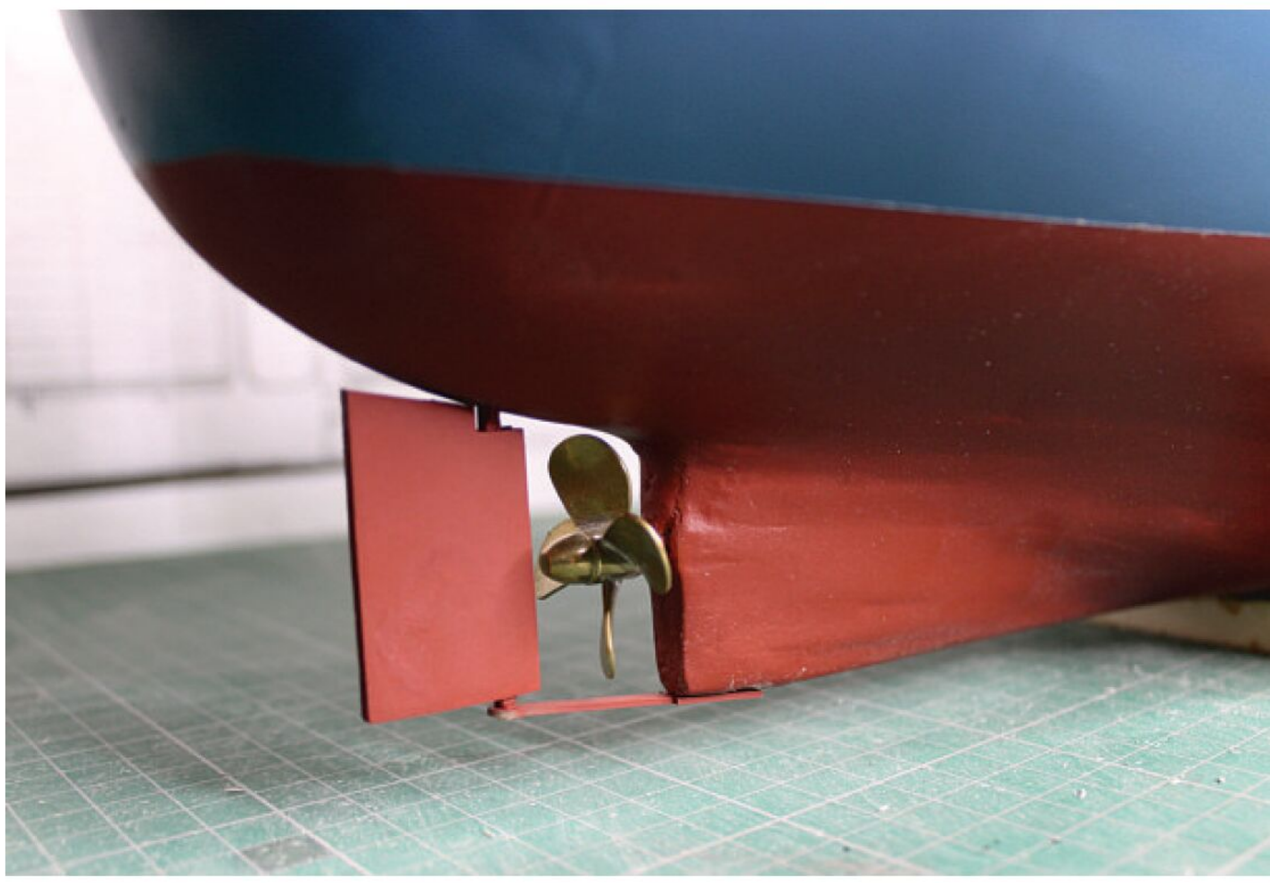
A surprising set-back

Regular readers will be aware that this review had been flagged up for inclusion in an earlier issue, and we now come to the reason for the delay… Planning well ahead, I'd already bought some Mediterranean Blue spray paint in keeping with the Mercanida Shipping fleet's iconic scheme to use as the main colour for my hull. Unfortunately, however, despite applying this to a test piece first, after spraying the hull and leaving it out to dry I returned to find there had been a nasty reaction between the paint and the primer. What's more, sanding the blistered paint back proved surprisingly difficult; so much so that I eventually resorted to going out and buying an orbital sander to mechanically remove it! Following this, I managed to find the correct shade of replacement blue required in Halford's rattle can range (intended for cars but just as suitable for modelling projects) along with suitably matched colours for the other areas, and used the brand's primers (in red, white and grey) and lacquer varnish, too.

The superstructure

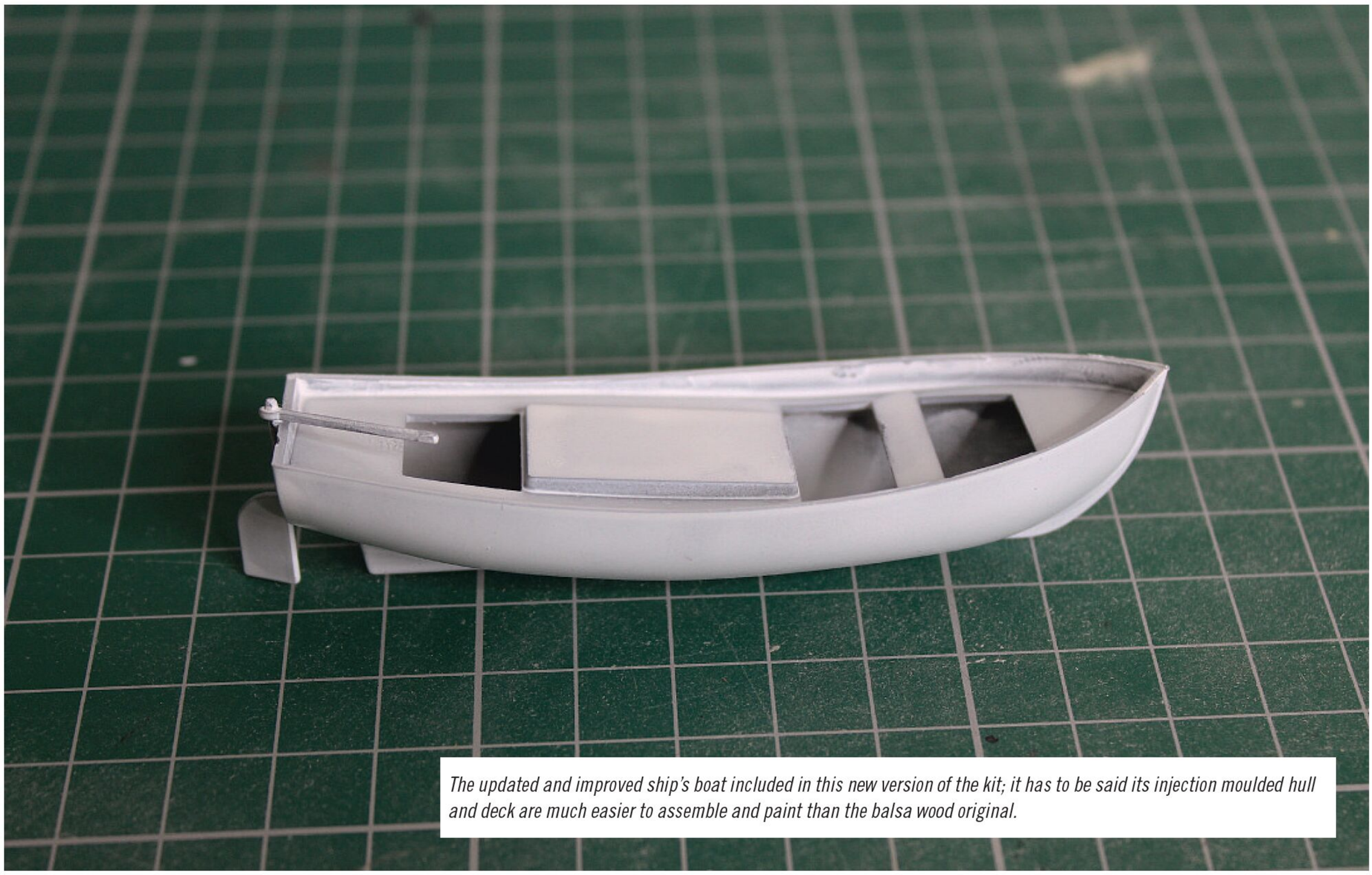
With the hull complete, work can begin on the superstructure and deck hatches. These are all laser-cut parts, most of which fit and slot beautifully together, creating a good solid structure. I now, however, come to my second criticism… I would have preferred thinner pieces of plywood for the bridge fronts. These should form curved sections on the model, but as the pieces provided are of the same thickness as the superstructure's other parts I struggled to get them to conform, hence my version doesn't quite capture the correct shape in





The rudder is a simple but effective affair. The propeller supplied is brass with an M4 thread that will fit most standard prop shafts.

Some of the many turned brass fittings and items with which to detail the model. The winches are particularly well rendered.



The updated and improved ship's boat included in this new version of the kit; it has to be said its injection moulded hull and deck are much easier to assemble and paint than the balsa wood original.

this area. There's supposed to be one continuous curve on both sheets that make up the front bridge plate and not the distinct step evident on mine. Fortunately, this doesn't look out of place, it's just not as per the kit intends.

At this stage a layer of 'finishing resin' can be applied; this seals the wood grain and reduces the amount of paint that needs to be applied.

The deck hatches are constructed rather ingeniously from different thicknesses of plywood sheet, and I found these a pleasure to build. The only nit-picking observation I'll make is that the individual cover planks for the hatches are shown facing in different directions when looking at the kit instructions, plans or box artwork; so, while not a major issue, you'll have to decide for yourself which way to go here.

"Be sure to refer to the supplied plans to achieve the correct profile here"

The final part to be made for the superstructure is the funnel. This needs to be carved from a balsa block using the template inside the kit instructions. Be sure to refer to the supplied plans to achieve the correct profile here, as the funnel is tapered in all directions. (Personally, I would have preferred a vacform plastic item, but it's not a deal breaker.) Once sanded smooth, the funnel can be given a layer of finishing resin, then painted and attached.

Fittings and masts

The fittings and masts are the highlight of this kit. For example, all the winches are made from brass and just look fantastic on the model. The have a beautiful sharpness about them and require no tidying up prior to construction.

However, we now come to my third, and final, criticism – which, again, relates to the kit instructions. The photos show all the parts in place but the parts identifier in the instruction phase is incomplete. I believe that older kits separated

Nick's completed build of Mercantic.

the parts required for each fitting into individually numbered trays. These trays, however, are no longer included. Instead, all the fittings' packs come supplied in one bag/plastic box, even though the new instructions still refer to the original tray numbers, meaning identification is nowhere near as easy as it would previously have been. Again, not a massive deal breaker, but the additional sorting now required does make things considerably more time-consuming.

The masts and derricks are constructed from interlocking brass tubes that slide into each other to create the taper. I simply followed the diagram in the instructions to construct these and glued them together, but they could, of course, be soldered if preferred. All rigging material is supplied as cord, in two different diameters, and attached via turned brass turnbuckles and eyelets.

Remaining fittings include a plastic lifeboat, brass rod lifeboat davits and plastic ladders. Adding another level of finesse to the model are the hand stanchions, which are turned brass two ball items, with brass rod to create the rails. Also provided is a Danish flag (cotton), along with some Mercandia Line waterslide decals for the hull decoration and ship's name.

Final thoughts

This kit isn't for the beginner, but it does build into a proper looking freighter from the 1950s for those with some experience of plank-on-frame construction.

In the future I intend to modify my *Mercantic* into a fully operational radio-control model, as I can already envisage just how stunning she will look on my local lake when sailed with other vessels of a similar era.

So, thanks Jens of Billing Boats for the review sample, and for the very welcome (winter is coming!) woolly hat received as an added bonus. I shall wear it with pride!

PART 1

HMS *Express*

Phil Button provides a great Example of how imagination + application = total transformation

While clearing out the cellar of my daughter's 'old' house ahead of a move, I came across the mortal remains of what had obviously once been an IC-engined race boat. This belonged to one of my grandsons and he was more than happy for me to take it off his hands. **Photo 1** shows the glass fibre hull (measuring 975 mm long, with a 275mm beam) and (detached) deck in 'as found' condition.

The question was, what to do with it? The hull shape had obviously been designed for some sort of offshore powerboat, but I didn't really want to build one of those, so I needed to find something with a similar shape that I could use this hull for.

After a bit of 'surfing' on the Internet, I chanced upon the Royal Navy P2000 'Archer' class of patrol boats, which serve as the University Royal Navy Units (URNU) as training vessels. The hull lines of these craft looked to me enough like an offshore power boat to work. Measuring 20.8 metres in overall length, with a beam of 5.8 metres and a displacement of 54 tonnes, this would give a scale of roughly 1:20 using my newly acquired hull and would result in a model displacement of around 6.75kg. **Photo 2** shows the member of the

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class I therefore decided to build: 'HMS *Express*', P163.

A little background history

HMS *Express* was commissioned in 1988 and is one of four identical vessels originally built by Vosper Thornycroft for the RNXS (Royal Navy Auxiliary Service) as Example class tenders.

When the RNXS was disbanded in 1994, the Examples were transferred to the Royal Navy for duties similar to those carried out by their Archer class sisters. HMS *Express* currently serves with URNU (University Royal Navy Units) Wales and is based in Penarth Marina near Cardiff.

"HMS Express currently serves with URNU (University Royal Navy Units) Wales and is based in Penarth Marina near Cardiff"

All four Examples were originally painted grey with a black hull, and they retained that livery until 2005. As I personally think this looked more attractive than the later all-grey scheme introduced, these are the colours in which I chose to represent HMS *Express*.

As built, these boats were fitted with twin Rolls Royce diesel engines that gave a top speed of around 15 knots. Some Archer class were fitted with Caterpillar diesels that raised this top speed to 25 knots. However, the biggest attraction to me was when I found out that the hull design was based on a maximum speed of 45 knots (now, that's more like it!).

Initial planning

I took a side-on photograph of the bare hull, imported it into my Serif 'DrawPlus' software and traced around the picture on screen to get an outline drawing of the hull. I had already found some outline drawings of the Archer class on-line and imported them into the drawing package as well. With a bit of computer wizardry in adjusting both the hull outline and the on-line drawings to the same size on the PC, it looked (on screen at least!) as if it might be feasible.

At a later date, I found a set of detailed drawings to 1:16 scale of another of the class (HMS *Exploit*) from Marine Modelling International. These drawings proved to be somewhat unreliable in relation to many of the details and fittings though, so I had to fall back on photographs of HMS *Express* and her sisters (sourced via the Internet) to get her somewhere near right.

Hull conversion

The hull as found was in rather a sorry state, having a number of areas of crazed and cracked gel coat, some holes in the bottom and the remains of the old flotation foam still stuck to the inside. Also, the GRP radio box that had been fitted at the stern had broken away from the bottom of the hull.

Firstly, then, I cleaned up the hull and made good, before some bulkheads and deck support stringers to suit the model's new use were fitted (see **Photo 3)**.

"I have another boat of similar size and weight to this one, which goes very well on the water, so I decided to use the same running gear for HMS Express"

Running gear

I have another boat of similar size and weight to this one, which goes very well on the water, so I decided to use the same running gear for HMS *Express*. This earlier model has a pair of 2826 outrunner brushless motors (28mm diameter by 26mm long) with a KV of 1900 (the motor gives an output of 1900rpm per volt), driving 40mm diameter two-bladed plastic propellers.

Propeller shafts and their outboard support frames were made up and fitted as in **Photo 4**. The aluminium strip was a temporary jig to keep everything aligned.

A 6mm ply keel was fitted in pre-cut slots in the hull and fixed in place using car body filler (see **Photo 5)**.

Now that the keel was in place, the model became more difficult to work on as it wouldn't stand up on its own, so a boat stand was built from scrap wood to support the hull during 'surgery', and also to also, eventually, transport it to and from the boating lake (see **Photo 6)**. The parts of the stand which would come into contact with the hull were covered with a plastic foam strip to protect the paintwork.

Rudders were the next job, and they were fabricated from brass and stainless steel and installed (see **Photo 7).** To fit these to the very thin hull, a wooden block was fixed inside the stern up against the transom, and

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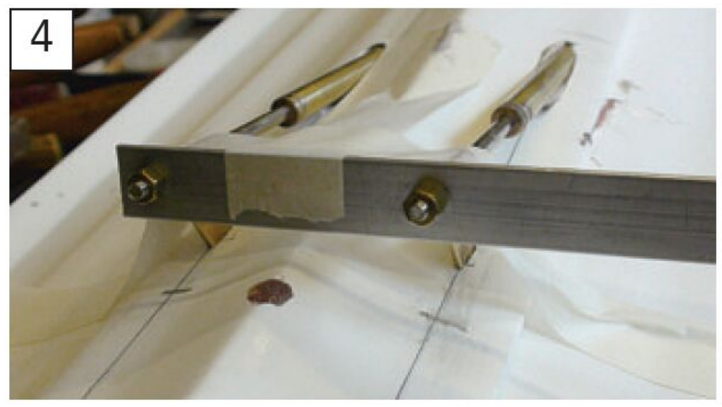

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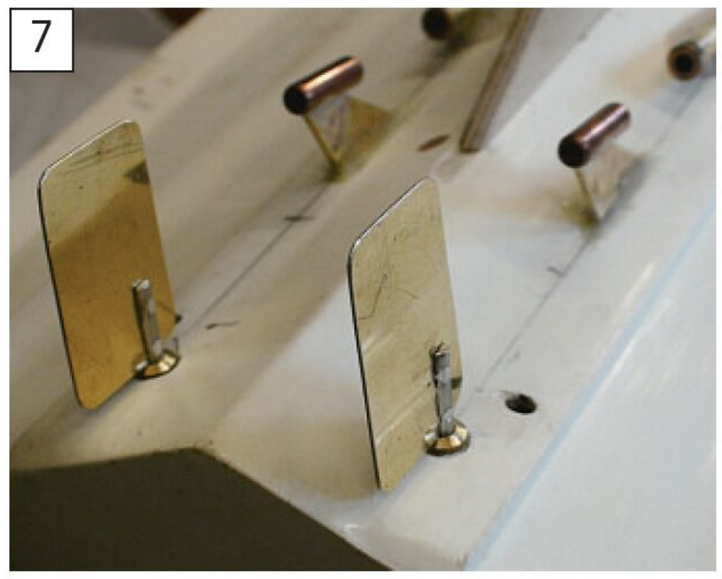

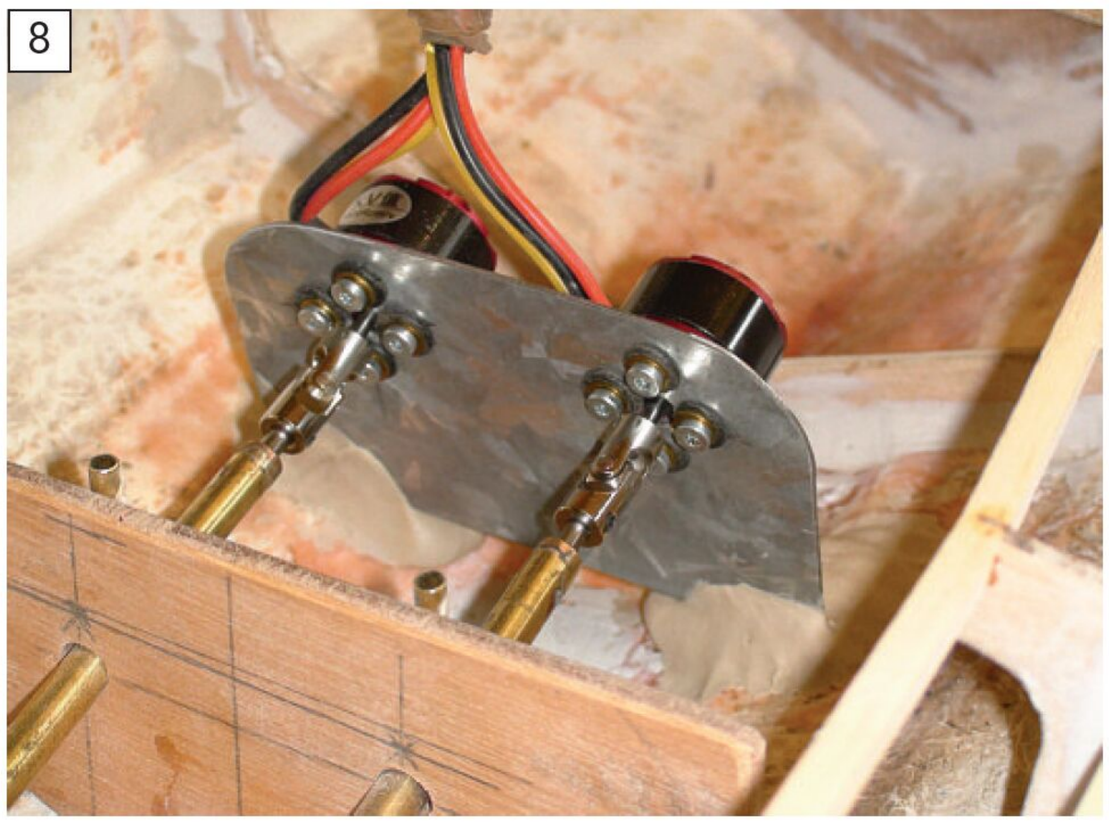

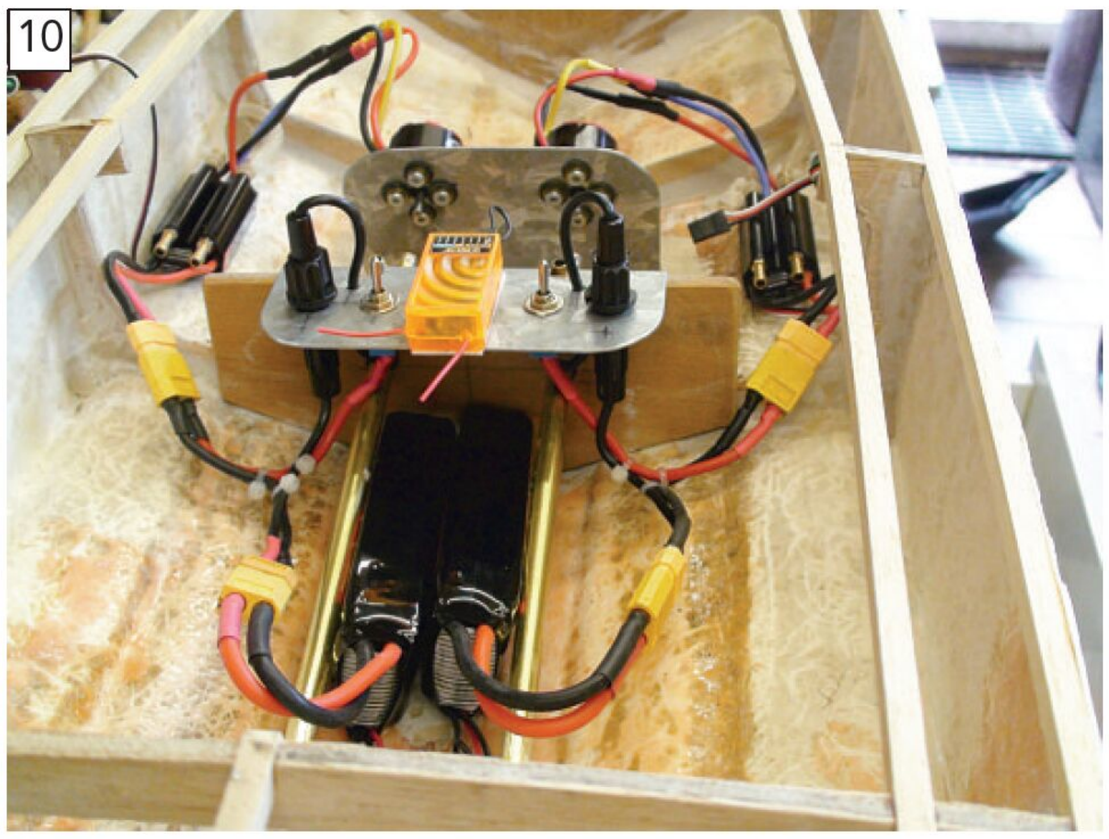

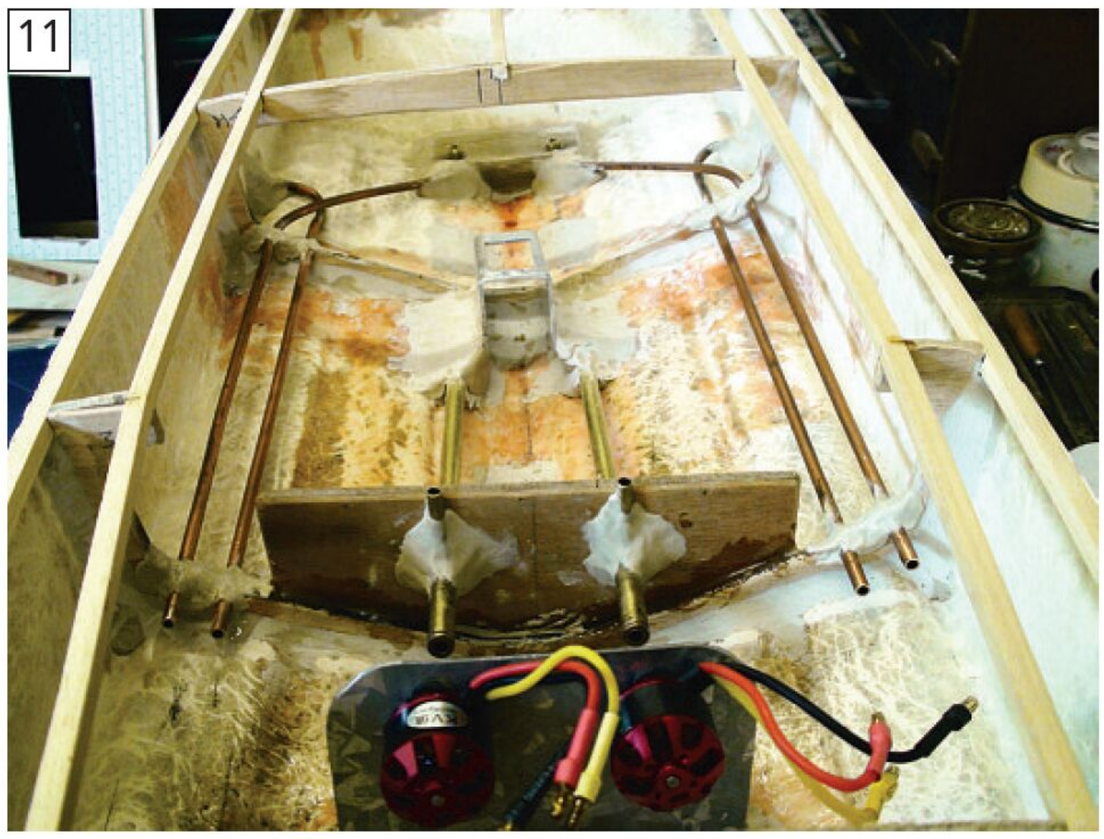

then drilled through from outside the hull to carry the rudder tubes.

Electrical installation

Electrical installation was to comprise a drive motor, electronic speed controller (ESC), in-line fuse, on/off switch and battery for each propeller, together with the radio control equipment and a lighting installation. I find it much easier to trial fit the running gear before installing decks, as access is so much better.

A sheet steel motor mounting plate was made up and drilled. Both motors were fixed to the plate using screws, washers and rubber grommets. (I use rubber grommets in motor mountings as a simple anti-vibration mounting).

After fitting the propeller shaft universal couplings to both motors and shafts, the motor mounting plate was carefully lined up and fixed to the hull using car body filler (see **Photo 8)**.

Control of both rudders was taken from a single servo, with a connecting link between the rudders and an operating link running forward to the servo (see **Photo 9)**. The servo was mounted on the bottom of the hull using a bent aluminium sheet bracket, fixed with body filler.

A plate for the on/off switches and the in-line fuses, was screwed to the propeller shaft inboard mounting. With the addition of a 2.4GHz six channel receiver fixed to the plate with double sided foam tape, two water cooled speed controllers (which would later be fixed to the hull using double sided foam tape) and a pair of LiPo batteries between the propeller shafts, the initial electrical installation was complete (see **Photo 10)**.

To avoid damage during further construction, the electrics, rudders and rudder linkage, propellers and propeller shafts were removed from the hull and stored safely for re-installation later.

There are two sets of water-cooling pipes, one set for each ESC (see **Photo 11)**. Each pipe has an intake scoop aft of a propeller and runs forward to near the ESC, fixed to the hull using car body filler. Eventually they will be connected to the ESCs via a piece of silicone tubing at both inlet and outlet. The ESC outlet pipes run aft and exit the side of the hull where the engine exhausts would be in the full-size vessel.

Having fitted a 3mm ply coaming around the deck opening to locate the superstructure, the outside of the hull was sprayed with primer/surfacer paint, sanded down, filled, and repainted as necessary to obtain a good finish. Then the interior of the hull was brush painted in aluminium paint (see **Photo 12**) – no special reason for the internal colour choice, it's just that I had a part-used tin of it!


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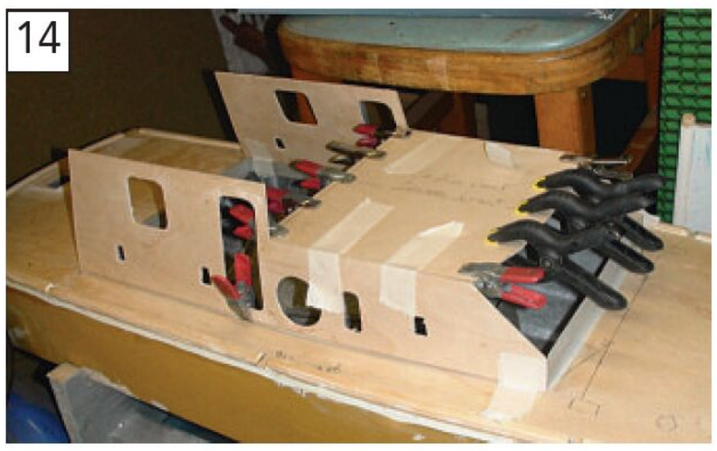
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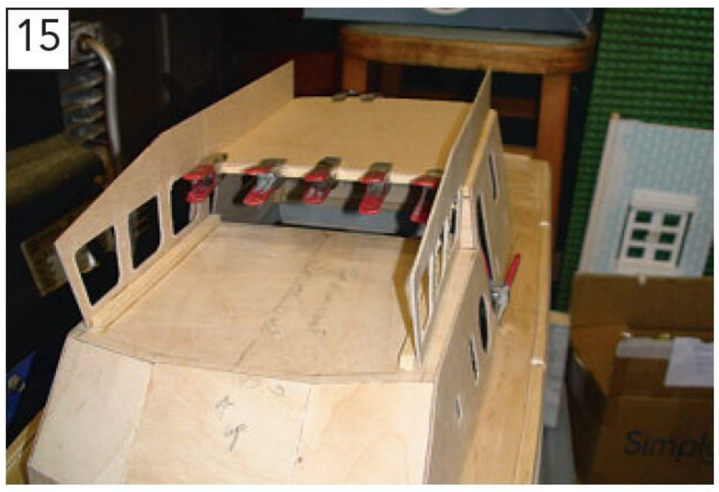
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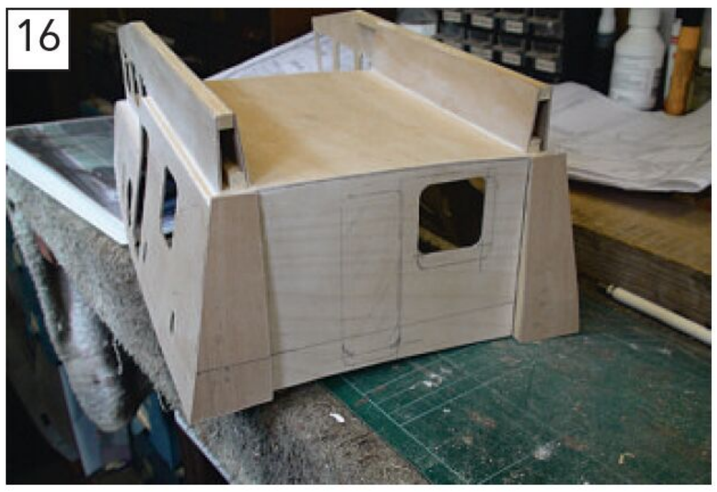
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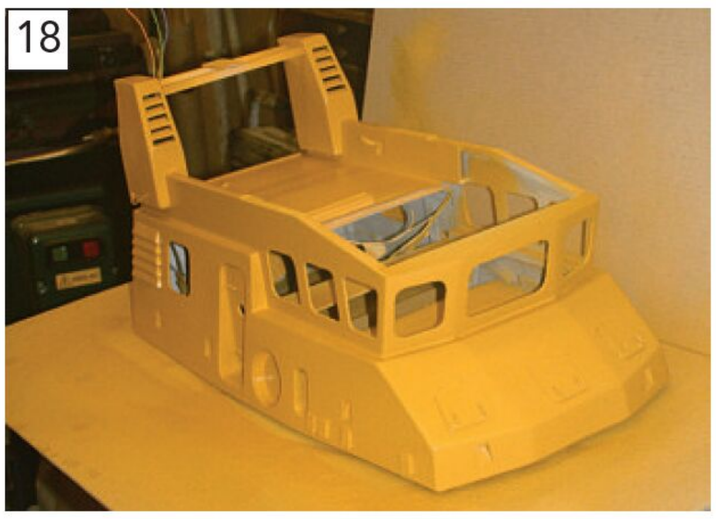
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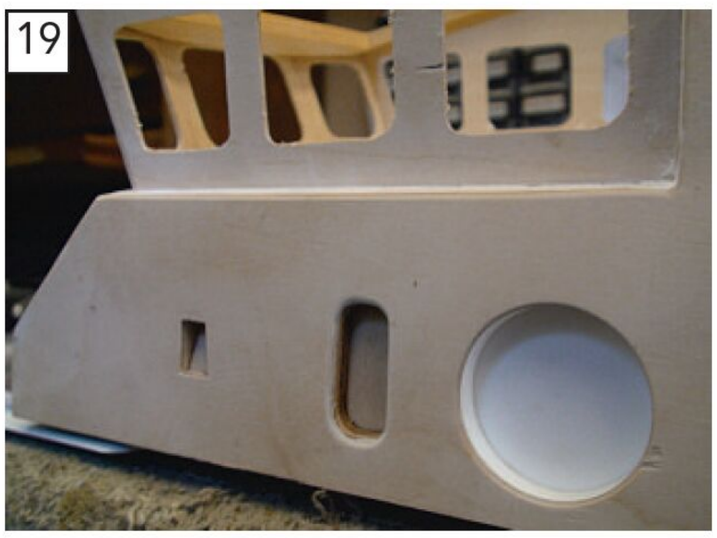
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With the coaming in place and the inside of the hull painted, it was time to fit the deck, which I made up from a number of individual panels of 1.5mm ply (since I didn't think that I could cut it out accurately enough in one piece). The first section covering the full forward deck was cut roughly to shape and glued to the top of the hull stringers. Then came the after deck, followed by the port and starboard side decks. Any gaps around the deck edges and joints were filled and the deck sanded to final shape.

Wide kicker strips are quite a feature of the full-size vessels, and these were cut from 3mm ply and glued around the deck edges. **Photo 13** shows the almost completed deck.

Superstructure

Since I like to have as much access as possible to the interior of my boats, the whole of the superstructure was going to be made removable as a single unit. This turned out to be a challenge to build, as it has sides that are both curved and sloping, with few right angles, and, of course, had to fit to curved decks. Where to start?

It looked like the best way forward was to build the whole superstructure assembly around the coaming in situ on the model so as to be sure it would fit (with carrier bag plastic sheeting used to avoid the cabin getting too attached to the model).

With pictures being worth a thousand words, Photos 14-17 show some stages of the cabin build, while in Photo 18 you can see the nearly completed cabin primed. There are lots of openings around the superstructure for deck lights, lifebuoys and smoke floats – Photo 19 shows some of them prior to painting. The deck light openings will be fitted with LEDs later on.

The entry doors through the lower cabin sides presented a different challenge, as these are vertical but somehow needed to be inset into the sloping sides of the cabin. I managed this by fitting a wedge-shaped piece of wood behind the cabin side opening, then chain drilling, filing and sanding to produce the inset opening. Each door is a piece of 1.5mm ply with bent wire handles, hinges from 0.8mm ply, and a plastic porthole from the odds and ends box (see Photo 20).

Lighting

Sudden thoughts of the future need for the lighting caused minor panic, as I realised that I hadn't left myself any easy route for the wiring of the deck lights and those on the upper conning position and mast. The deck lights didn't prove too problematic in the end; a pair of single core telephone type cables was fed through holes in the light openings, 'fished' for using a bent piece of stiff wire with a hooked end and taken through to the lower cabin. The mast, however, was a different matter. This needed to carry lights as follows:

* One white 'anchored' light at the masthead
* Two red 'not in command' lights just below the masthead
* Two red 'not in command' lights at the base of the mast
* One white navigation light just below the masthead
* One white floodlight at the base of the mast

All of these would somehow need to be wired from the mast and through the upper conning position sides to come out in the cabin, and I hadn't made provision for this! I drilled through the base of the starboard


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side of the upper conning position from inside the cabin and then made a hole in the inside of a ventilation duct just below the mast support structure. With the rear end of the upper conning position removed temporarily it was just possible, after much fiddling about with small wire hooks (and loss of my cool on occasions!), to get a total of four single core telephone wires between the cabin interior and the mast base – that would have to do!

Painting

First up were the two conning positions, (the upper one complete with part of the cabin roof). These were painted satin grey and provided with waterslide transfers for the instruments (see **Photo 21)**.

Next, the hull. This had already been painted with a primer/surfacer and well rubbed down. The hull bottom was painted red before marking the waterline using a felt tip pen in a 'rough and ready holder' (see **Photo 22)**. After masking off at the waterline, the upper part of the hull was painted black, followed by masking at deck level and painting the deck grey (see **Photo 23)**.

The decks of the full-size HMS *Express* were covered in a green non-slip coating of some sort. This material had a diamond pattern textured finish, so how to replicate that? After a good deal of head scratching an idea occurred to me, triggered by my 'other half' taking down some old net curtains for 'scrapping'.

"After a good deal of head scratching an idea occurred to me, triggered by my 'other half' taking down some old net curtains for 'scrapping'"


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If the net was laid flat in the right way, it gave a diamond pattern very like the deck coating (see **Photo 24).** The netting was fixed to a backing of thin brown card, using diluted PVA adhesive.

All the textured deck sections were marked out from card templates, cut out and painted green, and the sheets fixed to the deck using contact adhesive, pressing down well to

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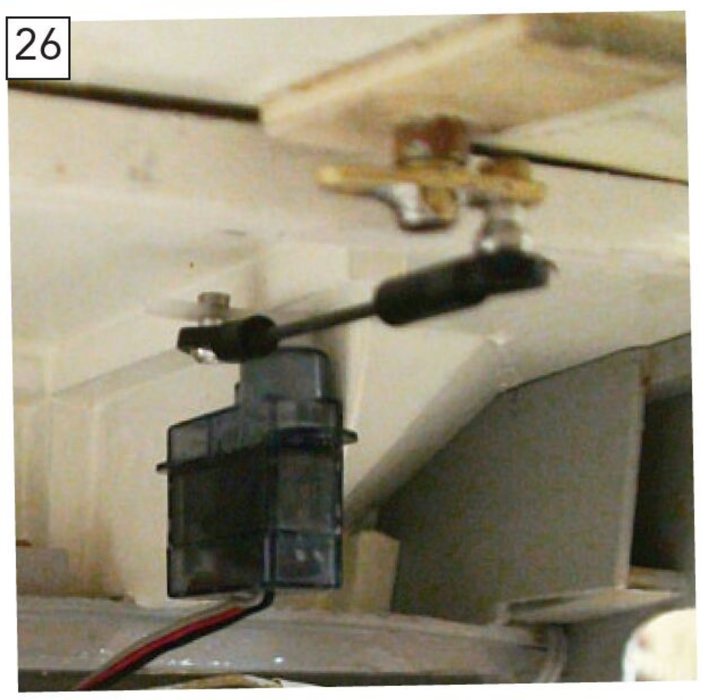

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exclude air bubbles. **Photo 25** shows the textured sheets in place.

Finally, the superstructure (which had by now received much of its detailing) was painted in primer/surfacer, rubbed down thoroughly and finished in light grey, also seen in **Photo 25**.

As an aside, the searchlight seen on the cabin roof was taken from a set of model aircraft LED landing lights (very bright!) then fitted to a metal mount. The light can be steered by radio-control using a mini-micro servo and linkage fitted inside the cabin roof (see **Photo 26 –** difficult to photograph as it's inside the cabin!)

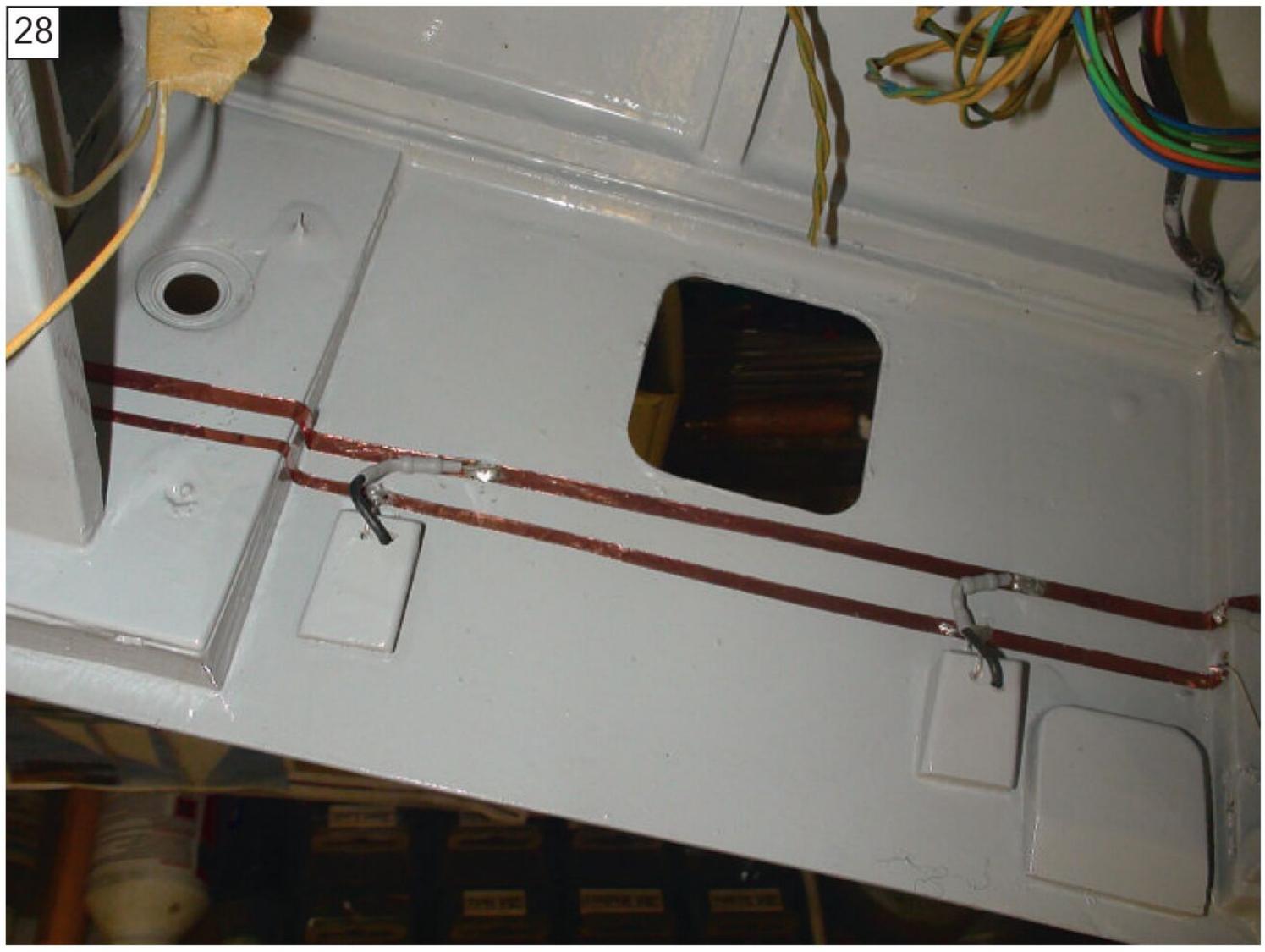
Mast assembly

Now came a task that I'll admit I'd been putting off, as it looked difficult: the mast. This, I'd decided, was going to be made from soldered brass tubing, with the wires for the LED lights running inside. I had already bought some lengths of 3mm OD brass tube, so, finally all out of excuses, I thought I'd better get on with it! With the brass tube being used as the common electrical connection for the lighting, I would need a total of three wires running inside it. I had a reel of enamelled single core copper wire and intended to use that for the job.

Cutting a very long story short, the mast assembly was built up from soft-soldered sub-assemblies of 3mm brass tube and 2mm brass and copper wire on a temporary plywood base, with the wires emerging from drilled holes in the tubing. **Photo 27** really says it all!

Lighting installation

All lighting on the model uses light emitting diodes (LEDs). I connected LEDs to their on/off switch and thence to the 3.7-volt lighting battery using strips of self-adhesive copper tape (one for supply positive and one for supply negative) all round the interior



of the cabin and soldered the LED leads to the strips. Part of these strips can be seen in **Photo 28**.

LEDs are not like filament lamps in that they require a constant current supply. This is achieved by connecting a resistor in series with each LED to limit the current passing and to avoid burning it out. With one LED lead soldered to the lower tape (see **Photo 28)**, the second lead was connected via a resistor (inside the grey shrink wrap) to the upper tape. The value of the resistor is dependent on the type/colour of the LED and the applied voltage and can easily be found on-line.

One source of LED data (and LEDs) that I use is Component Shop (www.componentshop.co.uk). There was also a useful article about the use of LED lighting in the 'Model Boats', Winter 2016 Special Edition.

Photo 29 shows a test of the deck lighting.

Cabin windows

Another job that I had been putting off (again, due to being unsure how to proceed) was making and fitting the multitude of cabin windows. My first job here was to create card templates for each window and mark them out onto 1mm thick clear styrene sheet. As each window was cut out it was carefully filed and sanded to fit its aperture, with its location identified on a piece of affixed masking tape. The window frames were marked out on 0.5mm white styrene sheet and carefully cut out and filed to finished size before being painted silver and glued centrally to the glazing. Each window was fixed in place in the cabin openings using canopy adhesive (see **Photo 30)**. Superglue should never be used on (or even near) clear styrene sheet as it will fog the styrene – been there, done that!

The windscreen wipers were small styrene blocks above the screen with the wiper blades cut out from litho plate (a thin aluminium sheet used by printers).

At the front of the upper conning position there is a 'wrap around' windscreen, which was built up from 1mm clear styrene sheet with white styrene channel section glued around its outer edges. This was fixed to the main cabin roof, as can be seen behind the searchlight in **Photo 30.** Later, I decided to paint the channel section light grey as the white just looked wrong – a bit of a challenge after it had all been fitted!

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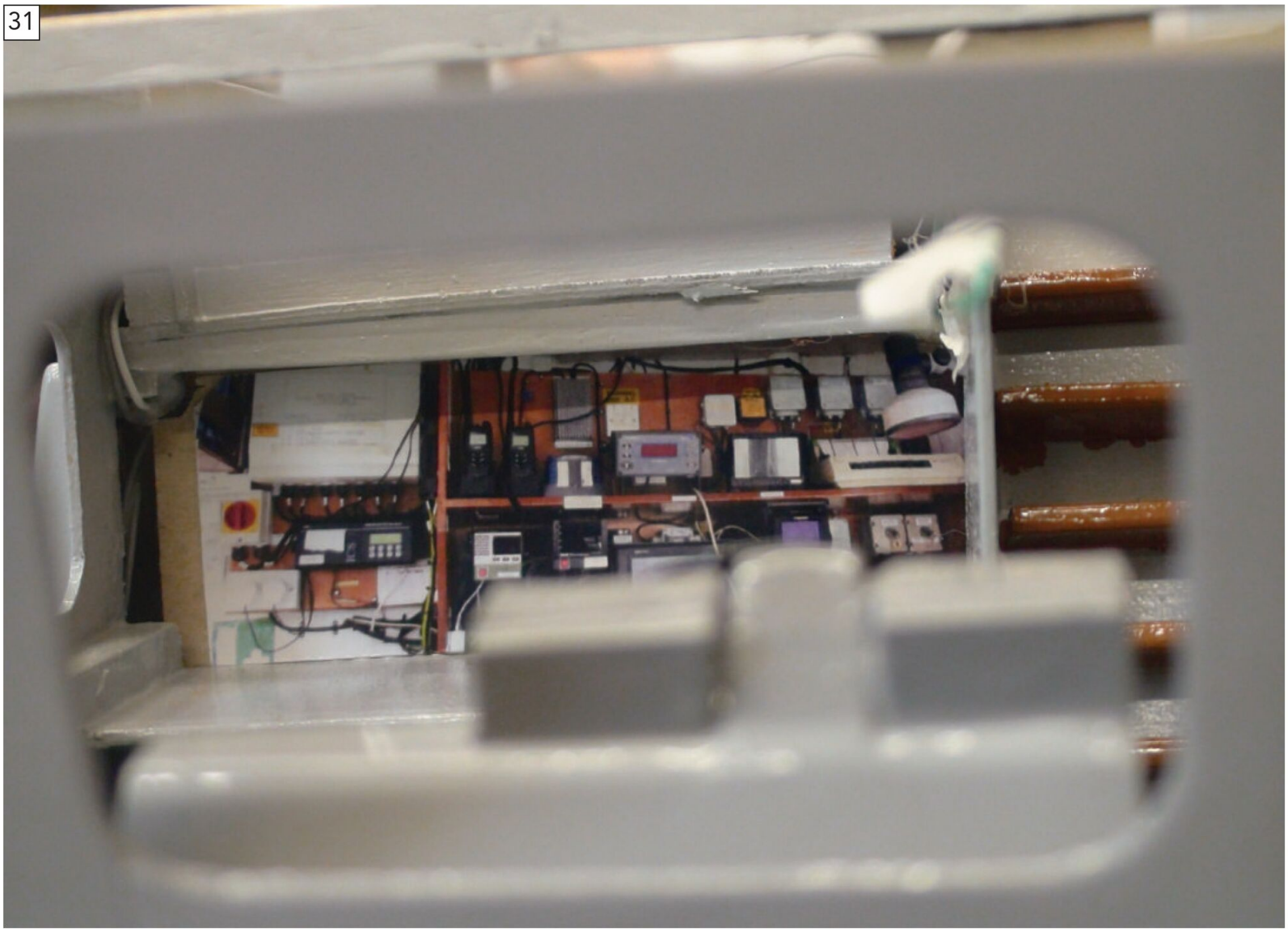

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Cabin detailing

Detailing for the inside of the main cabin included two crew members and a chart table complete with miniature charts and navigation instruments, as well as the control console.

One feature inside the main cabin that I particularly wanted to simulate was the 'communications fit' on the rear wall of the cabin. This proved incredibly easy; all I had to do was download a picture from the Internet to my PC, adjust it to fit, print it out and stick it in place. **Photo 31** is as seen through the windscreen, with the back of the lower control console out of focus in the foreground.

A number of lifebuoys were provided around the main cabin and on the handrails – made from wooden rings and sanded both sides to give a flatter cross section, before painting signal red and adding linen cord whipping at four points around the circumference.

Each side of the main cabin also has a smoke float, housed in a recess. These floats were built up from plastic rod.

Photo 32 shows a lifebuoy and a smoke float fitted in their niches on the starboard side of the cabin.

Part 2

Next month I will fill you in on the remainder of the detailing and report back on the trials and tribulations of *HMS Express*'s maiden voyage. ●

Chieftain

Peter Koch-Osborne explains how, drawing on lessons learnt during a previous project, he finally tackled this long on the back burner build

While enjoying a cruise back in 1975, I was fortunate enough to see the paddle tug *Dexterous* at work in Gibraltar and, having marvelled at its superb manoeuvrability (being able to run paddles in opposing directions and turn on the spot), the idea of modelling one of these vessels immediately appealed to me. Paddle tugs have several advantages over screw driven vessels. Firstly, the wash from a screw-driven tug propeller acting against the side of the ship it is trying to 'tug' is counter-productive and quite significant at close-quarters in the confines of a harbour. Secondly, the paddle tug's towing gear is situated aft of the paddles; this, I am informed, removes much of the danger of the tug slewing sideways and the rope causing a near capsize, which is a danger attributable to screw powered tugboats, where the thrust is aft of the towing gear.

The design of this model was

"Paddle tugs have several advantages over screw driven vessels…"

based on my experience of having built the Clyde paddle steamer PS *Duchess of* Fife (see **Photo 1**) some 50 years ago. Yes, 50! This was largely unsuccessful due to paddles 'digging in', drawing the paddle decks down to the water, along with a lack of forward momentum being generated by the scale (non-feathered) paddle floats; a screw and a third motor was eventually fitted to supplement the paddles. The *Duchess* was later sold, while the next 50 years were occupied with career, family and model railways. I did at this earlier time have a plan of *Chieftain* but I didn't really know where to start. I


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have since learnt the above-mentioned operational problems are common with model paddle boats.

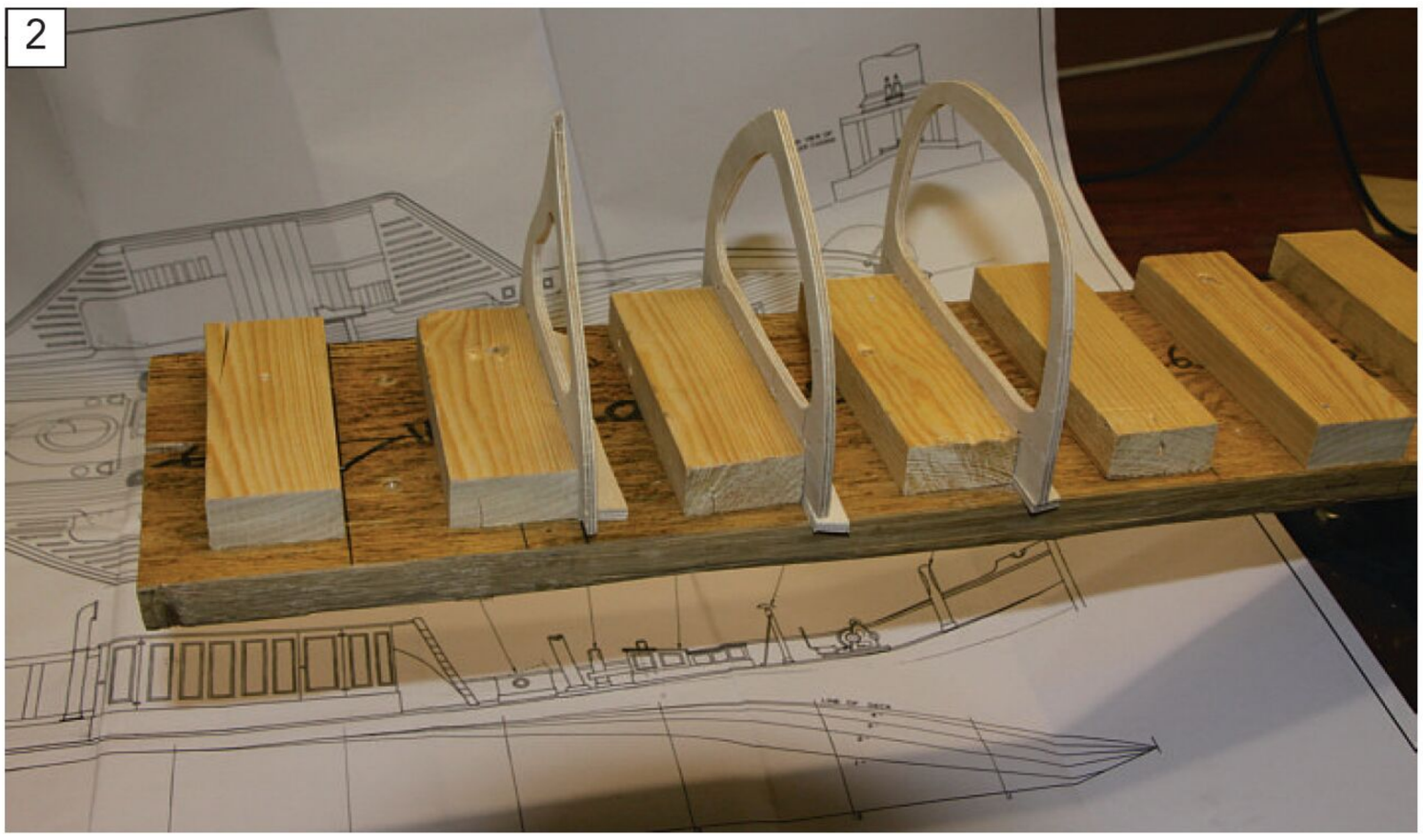
Following experience gained through a lifetime of model-making (and ever advancing age!) and the building of *Rosemary* (a slipper launch), an Amphicar and *Lady Jane* (a steam launch), my thoughts once again turned to *Chieftain* – an itch that still needed scratching!

Design considerations included keeping the centre of gravity as low as possible by using light materials and positioning any weighty components and all the ballast as low as possible. I decided to feather the paddles, enlarge the floats and commission a brass etch to aid their construction, more on which later.

With this in mind, I once again obtained plans for *Chieftain*, a 41-inch model of the 1899 River Tyne paddle tugboat. While this article follows (I hope) a logical sequence, in practice construction of the hull, superstructure and paddles continued in parallel, some design problems being solved 'on the hoof' as work progressed.

The hull

I started off with my trusty piece of oak floorboard as a building board. This was marked out with the positions of the bulkheads, numbered 1 to 10, using a try square to ensure accuracy. Amidships two large spaces existed between the given section lines. Two additional intermediate bulkheads were interpolated between these lines on the drawing and numbered 4a and 5a, making a total of twelve in all, now more evenly spaced along the keel line. A short block of planed 2-inch x 1-inch timber was screwed 2mm from each bulkhead centre line to support the bulkheads and screwed down from below to allow for later removal when the inside of the planked hull would be inaccessible.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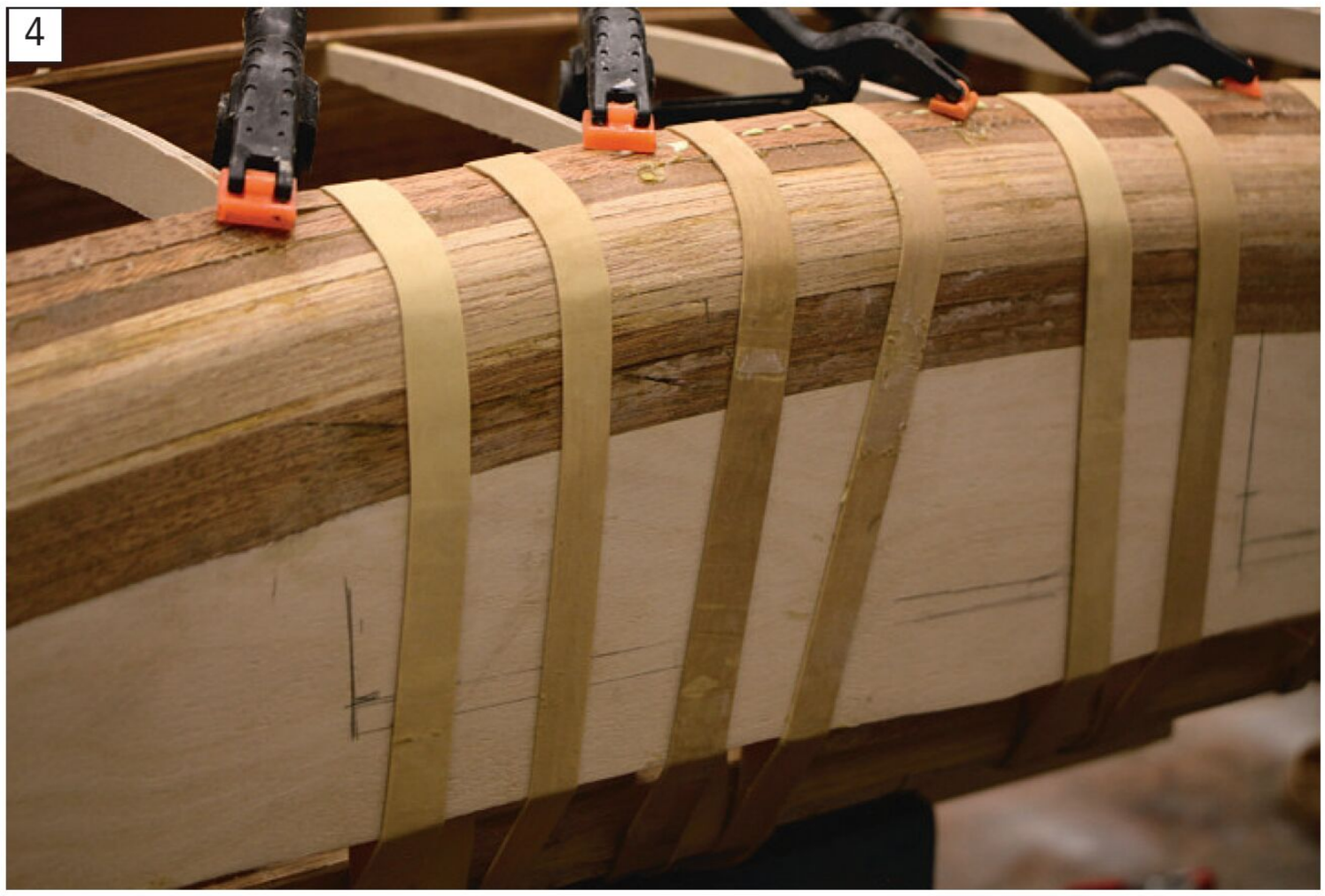
The bulkheads were traced and transferred to 4mm birch plywood and cut out using a bandsaw and a mini jigsaw. They were then screwed to the 2-inch x 1-inch blocks, taking into consideration the fore-to-aft curvature of the hull, which involved all but the end bulkheads being set higher against the blocks using shims of plywood to set the height (see **Photo 2).** The section of each bulkhead above deck level was only partially cut



out, leaving ‘tabs’ to be cut through after removal from the board. Once set up, much time was spent finely trimming the bulkheads to eliminate any high spots or concave areas in the hull; this was done by continually checking with a straight edge and a spare bit of planking to ensure a smooth curve (see **Photo 3).**

A significant area of each hull side is nearly flat, and not to a complex curve. I elected to use 2mm birch ply for this area. I measured 100mm from the keel line and marked the side of each bulkhead. This mark and the top of the gunwale gave me a shape for the area that was not subject to complex curvature. This shape was traced, transferred to wood, and two sections of 2 mm ply cut on my bandsaw (see **Photo 4)**. I had already decided to omit a full length keel, partly to keep ballast as low as possible in an unobstructed hull bottom. I set a 4mm section of birch ply into the first three bulkheads at the bow only (see **Photo 5)**. Planking proceeded in the reverse order to convention, starting at the lower edge of the flat section of 2mm ply and working towards the keel. I used 2mm mahogany, 8mm wide planks for most of the hull and 4mm wide for the more tightly curved areas of the bulkheads. A false, external only, keel would cover the central join. The complex curvature of the stern was achieved with solid blocks of balsa wood and much carving and sanding (see **Photo 6).**

“Planking proceeded in the reverse order to convention”

The hull was sanded, removed from the building board and primed. The inside was treated to a couple of coats of clear epoxy to seal and reinforce the relatively light structure. After fibre glassing the external surfaces with super-fine mesh, masking, and painting using ‘rattle cans’, the hull was turned over, rested on two old cushions, and work could commence on the decks and superstructure. The waste material was removed from the top of each bulkhead (see **Photo 7)** using a home-made mini padsaw to cut the ‘tabs’.

To support the paddle decks, two sections of 5mm square aluminium were drilled for lightness, passed right through the hull and epoxied in place; one of them later being cut out in the centre for access. Further sections of aluminium angle were used to carry the feathering eccentrics, more on which later. 4mm ID brass tube was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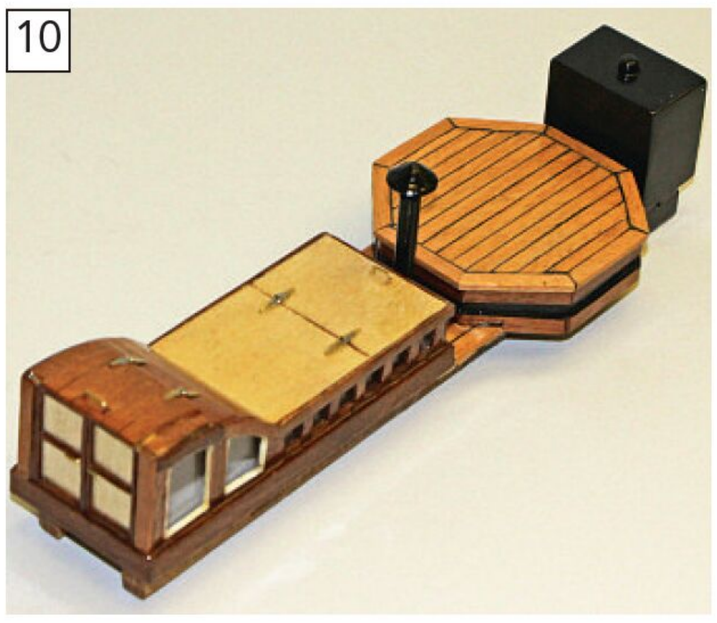
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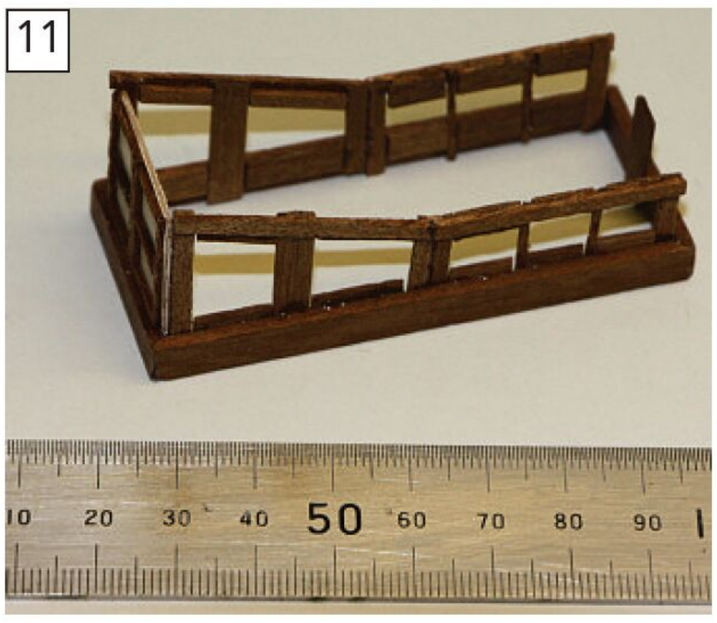

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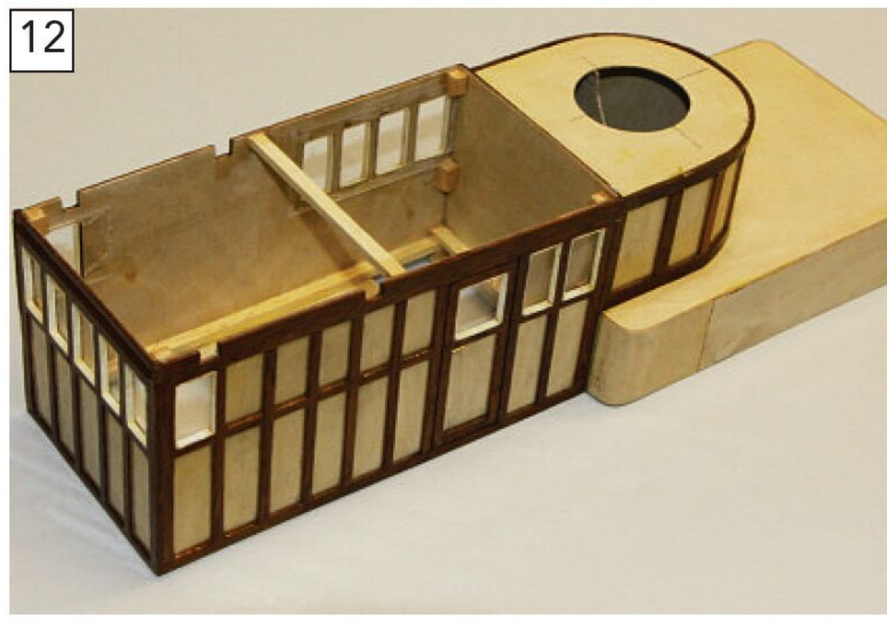
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set through the hull, braced and similarly epoxied, with the centre section cut out for the gearbox, this to act as paddle wheel bearings.

Decks

The decks were planked with 3mm x 2mm beech strip. The first plank was laid centrally, while additional support was provided in the form of flat coffee stirrers (no expense spared here!) to even up the cut top edges of the bulkheads and provide intermediate support to the 2mm thick planks (see **Photo 8).** Note the lead sheet ballast laid flat in the bottom of the hull sealed in with clear epoxy.

"Additional support was provided in the form of flat coffee stirrers (no expense spared here!)"

The edge plank was laid first in 8mm wide, 2mm thick beech. The remainder of deck planking was laid with 2.5mm wide strips of black 100gsm paper on edge between each plank to represent the caulking; a painstaking job, much like planking the hull but with the added fiddling with the paper strips (see **Photo 9)**. This started with the centre plank, continually checking symmetry. Planks were kept to a maximum length of about 80mm. After much sanding and finishing with sanding sealer and satin varnish, the matt finish was obtained by a light rubbing down with steel wool. The bridge deck and paddle box decks were laid similarly, these being all set on a subtle curve down to each paddle box. The bridge wing decks over the paddle boxes were built in the same way, using 'Card Roket' to (very effectively) glue wood to plastic. The plastic card steps on the paddle boxes were topped with timber treads, as per the beech deck planks.

Superstructure

This was fabricated from a mixture of various widths of 1 and 2mm thick mahogany, 1mm ply and white paper strips for the window inner frames. Acrylic sheet was used for windows and portholes. The deck lights have lathe-turned portholes (yes, I know one can buy these, but making them is much more fun!). The mast, comprised of two short knitting needles joined together with a brass rod, was slotted into a brass tube that I'd fixed into the deck before planking, before being epoxied into the hull at the keel, and its point replaced with a finial. The winch is a commercial 3D printed item, as is the lifeboat, and crew members. Various bits of plywood, strip-wood, acetate and plastic were used to make up other details (see **Photos 10, 11 and 12),** though the brass handrail posts, navigation lights and lifeboat davits were purchased items. For the rigging and guy wires I used thin shirring elastic, made removable with hooks fashioned from brass wire. The companionway was fabricated from strip-wood and stained, and in order to make my ropes look more realistic I first soaked the string they were made from in tea and coffee.

"Only a model boat builder would be seen in a supermarket measuring the diameter of deodorant cans with a digital Vernier gauge!"

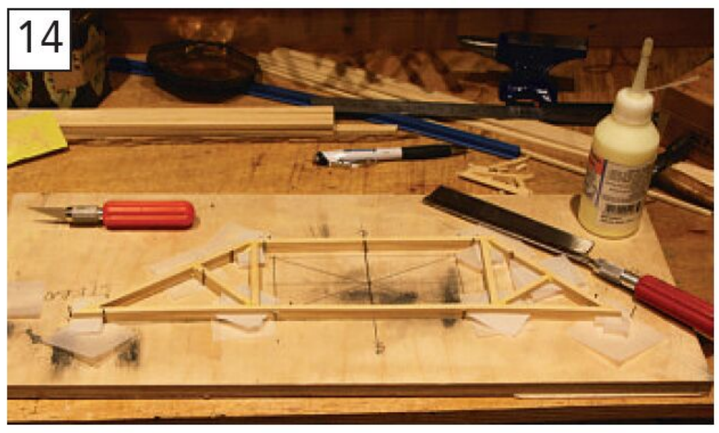
For the funnel, I needed some thin aluminium tube. This came courtesy of an anti-perspirant spray can – only a model boat builder would be seen in a supermarket measuring the diameter of deodorant cans with a digital Vernier gauge! Despite being on the receiving end of some decidedly odd looks, I had to keep my cool during this selection process; most were too wide, and I was mindful of the fact that the higher items on the superstructure needed to be of minimal weight. I then used adhesive tape strips for the bands and copper

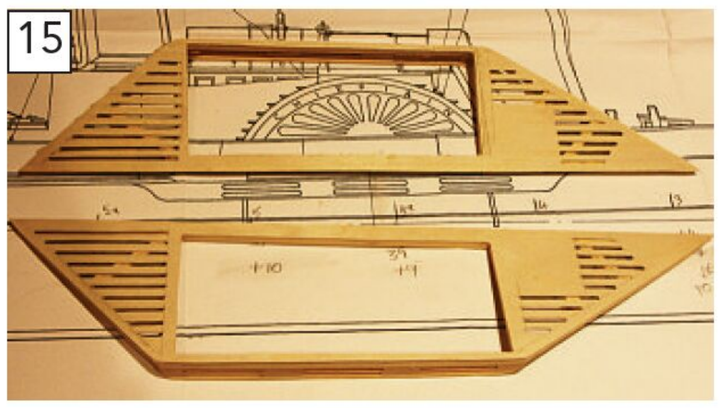
tube for the whistle. That said, experiments with the 'smoke' unit, confirmed it needed to be installed as high as possible, with its own light weight tube (which I rolled from thin plastic card) within the funnel. This, therefore, was installed at the base of the funnel, breaking my self-imposed rule of keeping the centre of gravity down as low as possible.

The paddle decks were constructed from 1.5 mm plywood on a frame of 4mm square hardwood and slotted as per the plans (see **Photos 14 and 15**). These sit on the 5mm square aluminium cross members referred to earlier, bolted down using 2mm bolts screwed into tapped holes in the aluminium. The paddle decks' fore and aft sections were screwed and glued onto the hull sides with 2mm wood screws.

The paddle boxes were fabricated from white 40 thou plastic card after carefully marking out, drilling and cutting the intricate fretwork. These were fixed in position, so the paddles and internal mechanism had to be built and proven first (see **Photos 16, 17 and 18**). More on building the paddles later! Here, I used old-fashioned poly cement of the type we used to get covered in while making Airfix kits, as this gives a stronger bond than solvent and has minor gap-filling qualities. Ships telegraph stanchions were lathe turned, filed to shape and then painted.

The handrail stanchions were commercially sourced. Fitted into drilled holes in the deck, but not yet





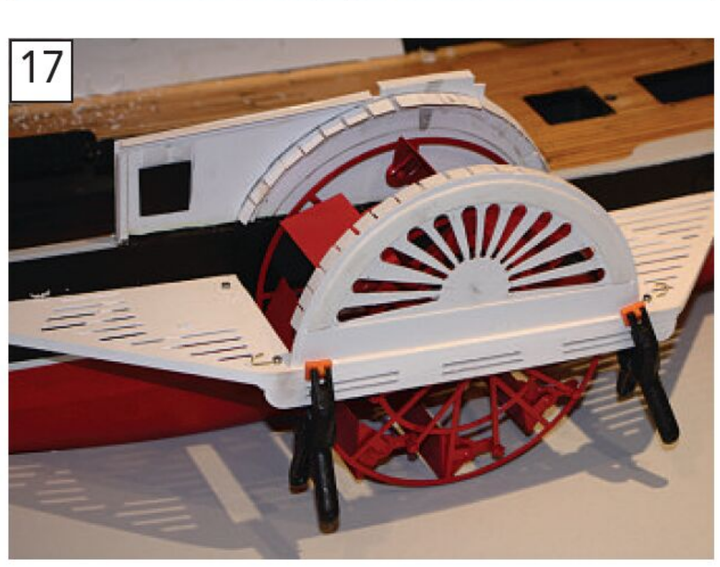
"Here, I used old-fashioned poly cement of the type we used to get covered in while making Airfix kits, as this gives a stronger bond than solvent and has minor gap-filling qualities"

glued in, the 0.7 mm brass handrails were soldered to these stanchions and each section removed, cleaned, etch primed and spray painted, before being re-fitted with cyano adhesive.

The fenders were knitted by my wife as a flat piece, rolled up, stitched at the back, superglue soaked where cut, tied on with strong button thread to homemade brass eyelets, and glued onto the paddle decks (see **Photo 19**). Again, these can be purchased, but scratch building, to me, means if something can be made at home, then do it**!**

The paddles

I now hoped to address several problems that came to light during the build of PS *Duchess of Fife*, a shallow draught Clyde paddle steamer from the turn of the last century. I prefer to examine these considerations from a practical standpoint rather that getting bogged down in loads of complex and tedious mathematics. In any event, scaling to the size of our typical models renders much of the arithmetic irrelevant, as we can't re-scale the viscosity of water. Compared to their full-sized counterparts, our models run in a thicker, more viscous, medium; not quite like having to forge their way through treacle but getting on that way! Indeed, my thinking was very much along the lines of John Parker in his excellent article on the subject

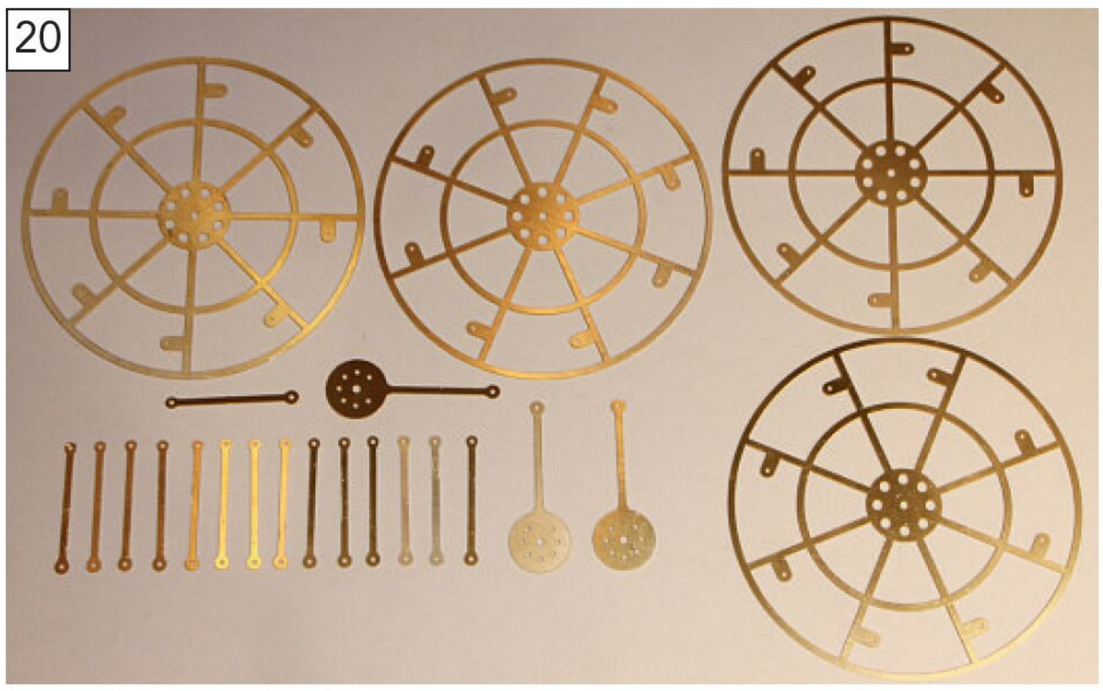


in the August 2024 edition of Model Boats.

To overcome this viscosity problem, therefore, I increased the depth of all the paddle floats by 50%. This may

"Scaling to the size of our typical models renders much of the arithmetic irrelevant, as we can't re-scale the viscosity of water"

seem radical but in practice barely shows when viewing the model. Thin etched brass material was used for the paddles; this 'cuts' through the water, minimising any unwanted disturbance. I had the paddle components etched in using 0.9mm brass for the wheels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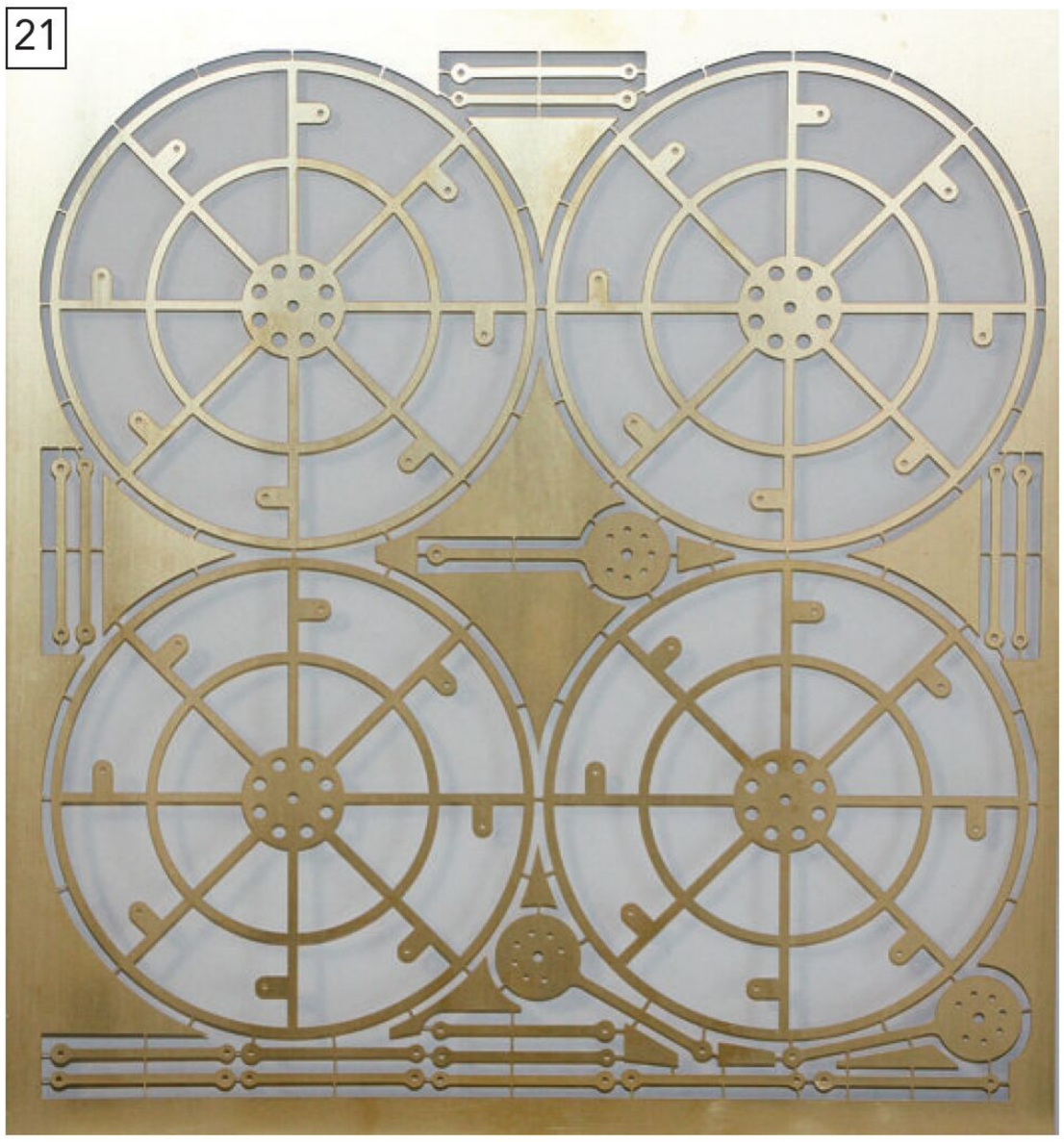
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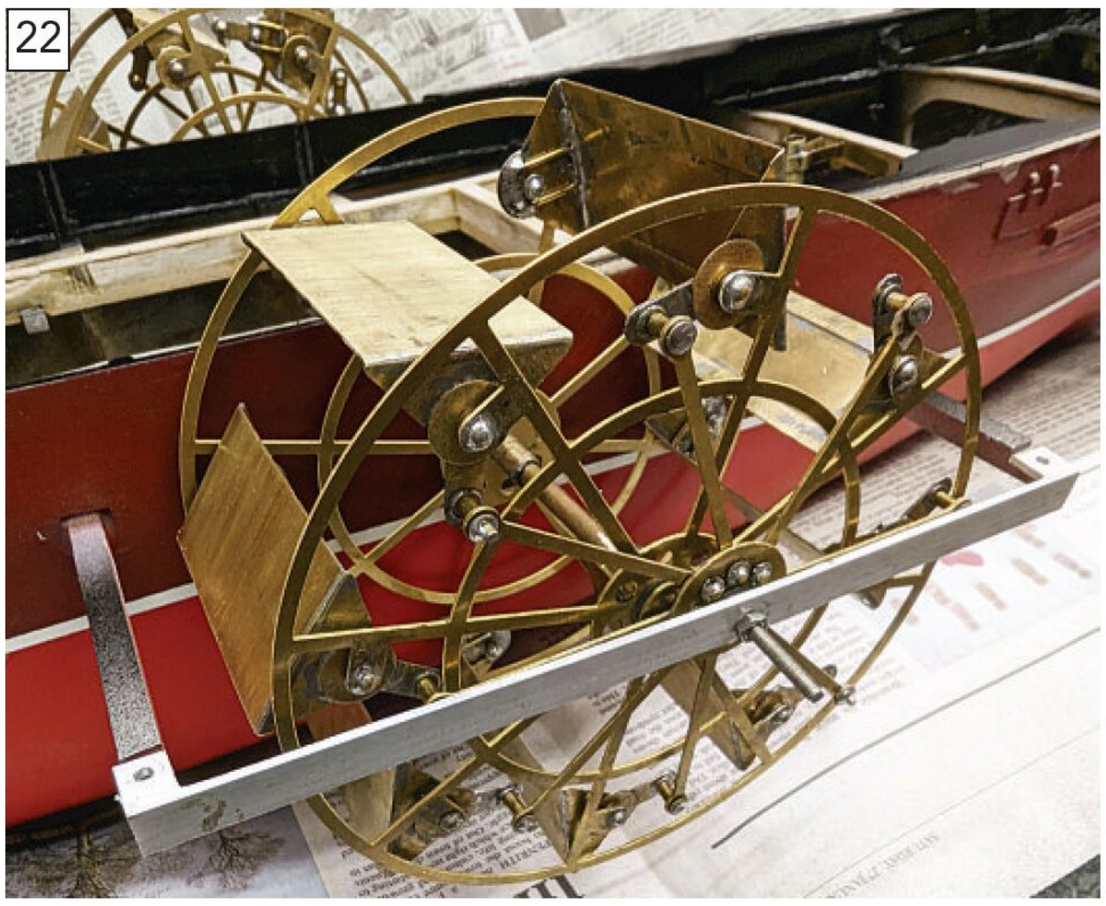
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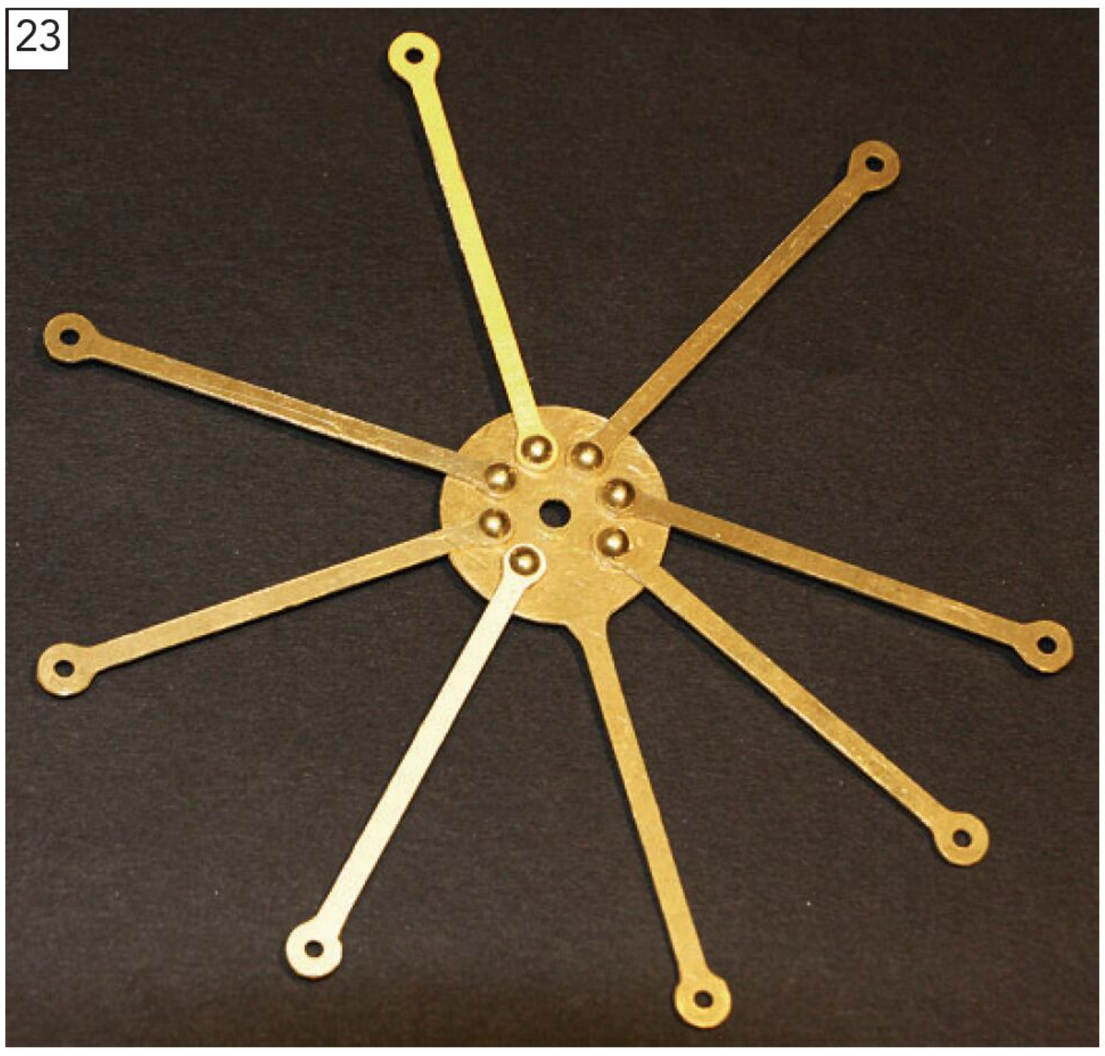
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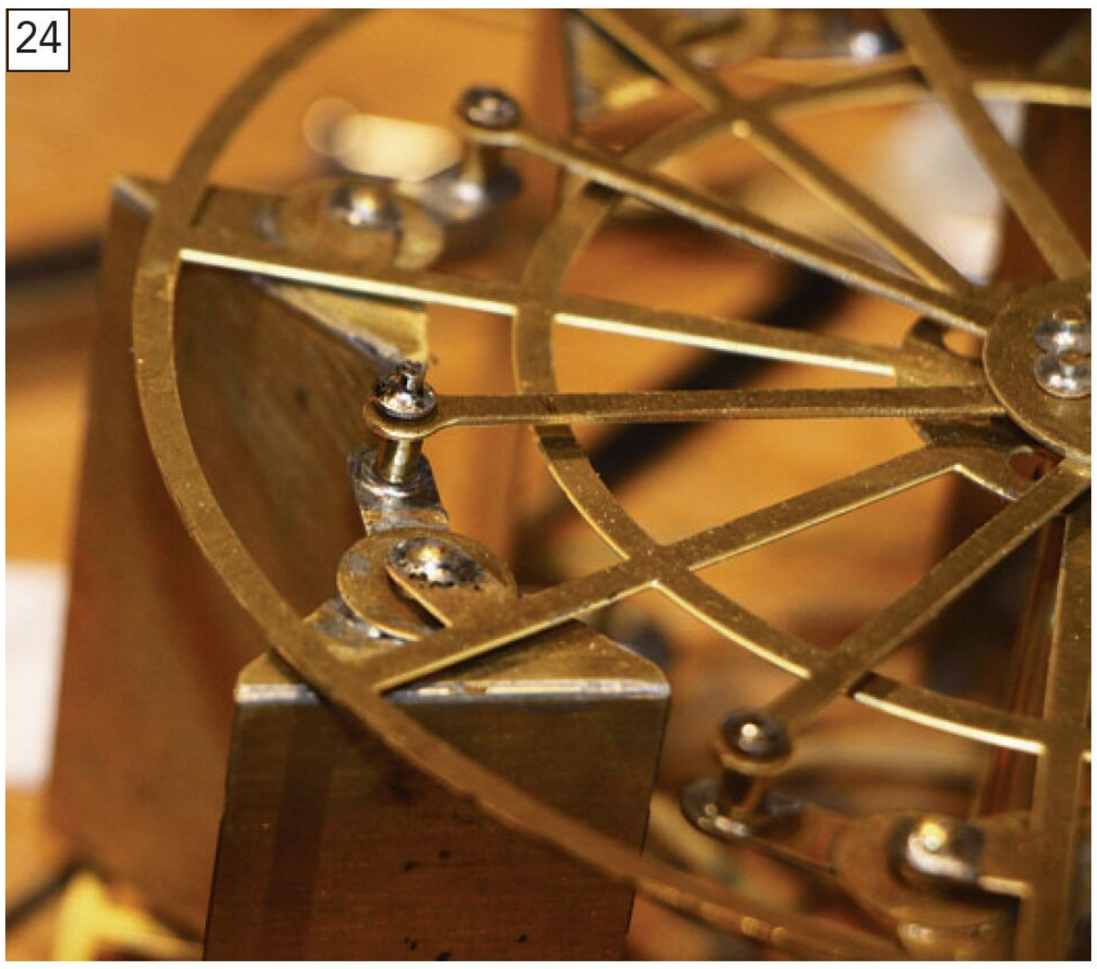
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and feathering components and 0.4mm brass for the paddle floats (see **Photo 20 and 21)**. The construction is soldered, the hubs being lathe turned, remembering of course that the paddles are 'handed' port and starboard! 2mm brass rivets of various lengths were used with brass washers for the many bearings. After much cleaning and testing, etching primer and bright red spray paint finished the paddles.

The paddles revolve on a 4mm brass axle running in the brass tube bearing located in the hull; the outer end being free. The paddle decks and feathering eccentrics are supported by the two lengths of 5mm square, as previously described. A piece of aluminium angle cut to a flat section for most of its length supports the feathering eccentric bearing (see **Photo 22**) bolted to tapped holes in the aluminium cross struts. **Photo 23** shows the feathering eccentric before fitting; note one of the arms is integral with the central disc and connected to one of the paddle floats to turn the eccentric with the paddle wheel.

Photo 24 depicts the paddle wheels being built up using 2mm brass rivets, with washers as bearings. Clearances were very tight within the paddle boxes, so great care was needed! Paper shims were used during construction to prevent the bearings being soldered up solid.

Paddle pulling power

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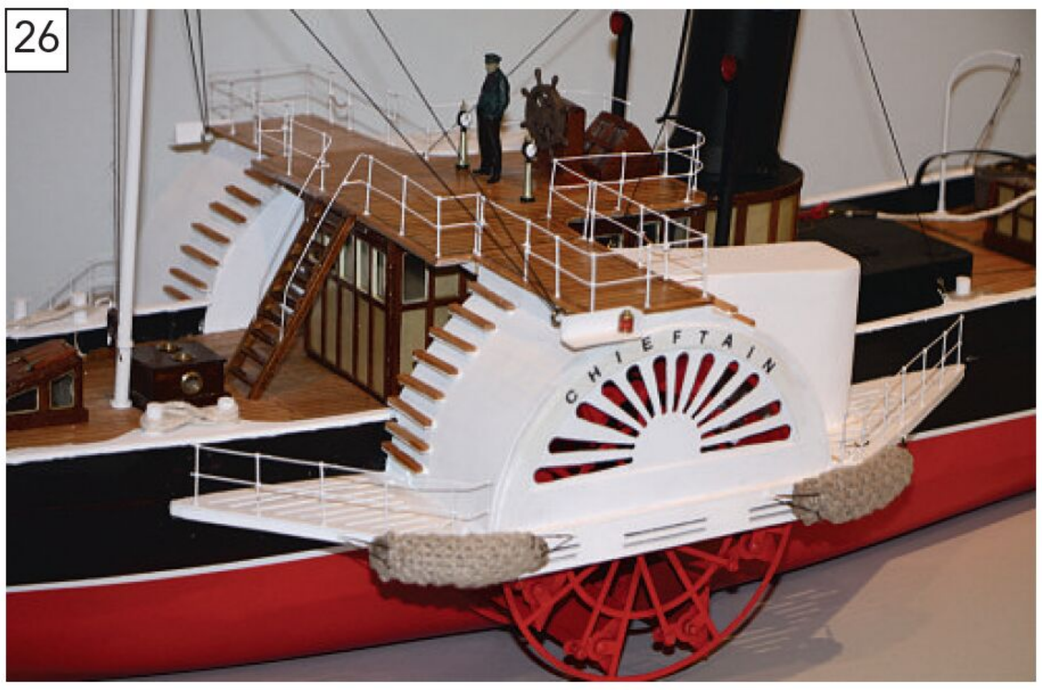


The mechanics comprise a pair of Torpedo motors. These were mounted diagonally to keep the centre of gravity low and provide a separate drive to each paddle via a home-made gearbox comprising Meccano worm gears with worm wheels (see **Photo 25**). These give a 30:1 reduction, and the 4.5-15v motors are run only up to 7.2v to keep paddle revs down to a maximum of about 120 rpm. Two speed controllers allow independent operation of each paddle. The aluminium gearbox was built in two halves, with screw adjustment for accurate meshing of the gears, while bearings were made from brass tube. Off-load this seemed to run the paddles too fast at 7.2v, so the NIMH battery pack was replaced with a 6v lead acid battery. However, after 'bath tests' and the calming effect of load on the paddles, the 7.2v set-up was replaced (further changes may be made as trials continue).

Encouragingly, these tests indicated a non-aerated smooth wash from each paddle, even at full speed with the boat held static. The forward motion of the boat would, I hoped, further smooth out the wash from the

27

paddles (obviously the boat couldn't go very far in the bath!).

A conventional servo controls the home-made brass rudder.

Sea trials

Photo 26 shows the bridge in place, complete with skipper, ready for sea trials. So… to the pond!

Initial trials have proved the vessel to be somewhat over-powered, so I may revert to a lower voltage set-up. I would keep the large motors, as plenty of torque is needed, especially when turning on the spot while running the paddles in opposite directions (see **Photo 27**). Hopefully, the lack of drama around the paddles, even when operating at full speed, is evident in **Photo 28**. The 'smoke' unit is surprisingly effective (see **Photo 29**), too.

In conclusion, this has been an interesting build. Keeping the centre of gravity as low as possible combined with the feathering of the enlarged paddle floats has proven very effective in overcoming the problems experienced with PS *Duchess of Fife*. ●

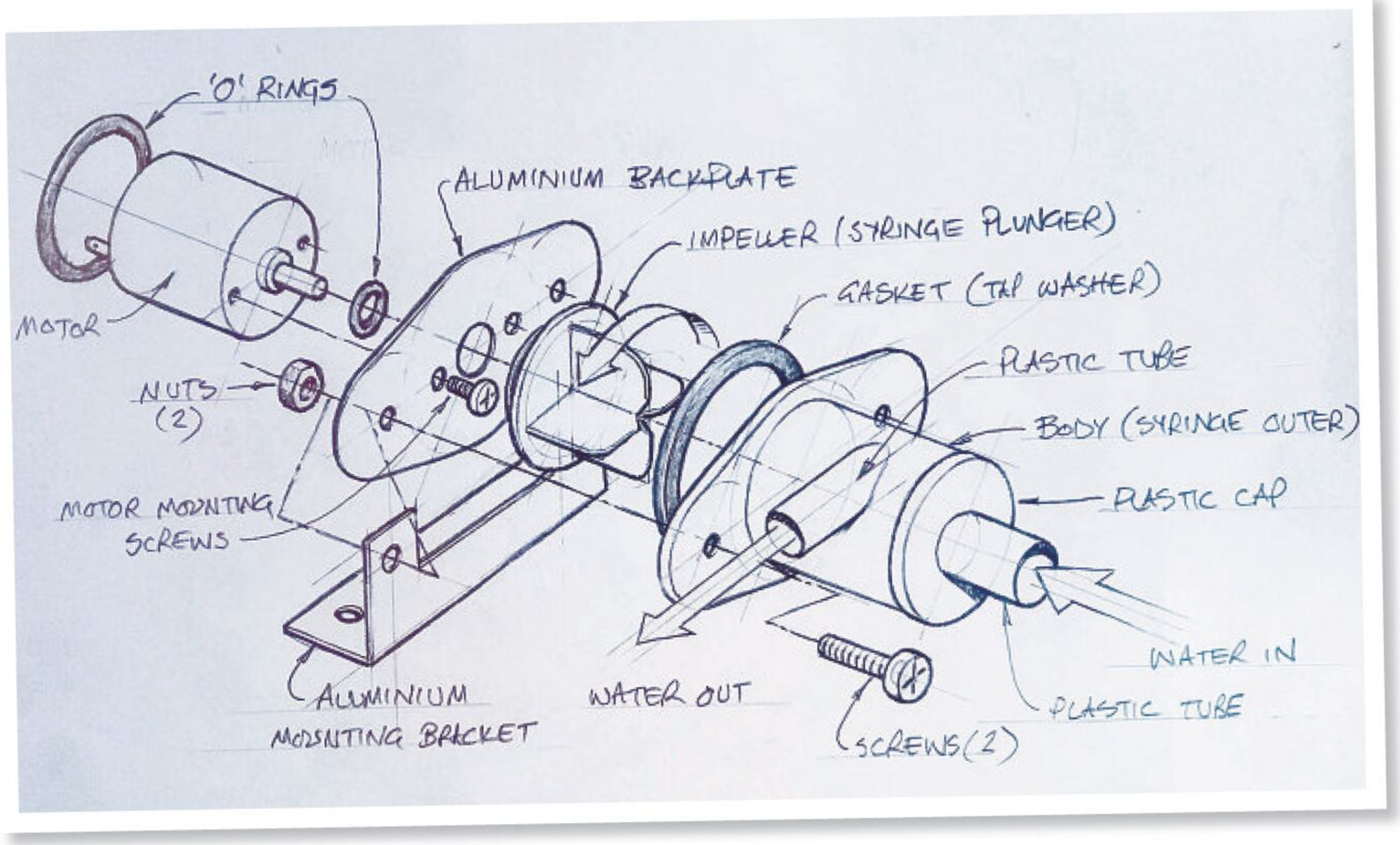
The Aero-Naut Firefighting boat purchased by Grahame as a summer holidays project he and his grandson can enjoy together, while at the same time incorporating a little added fun!

DIY water cannon

Grahame Chambers injects some extra fun into his plans for a summer holiday model fire-float project

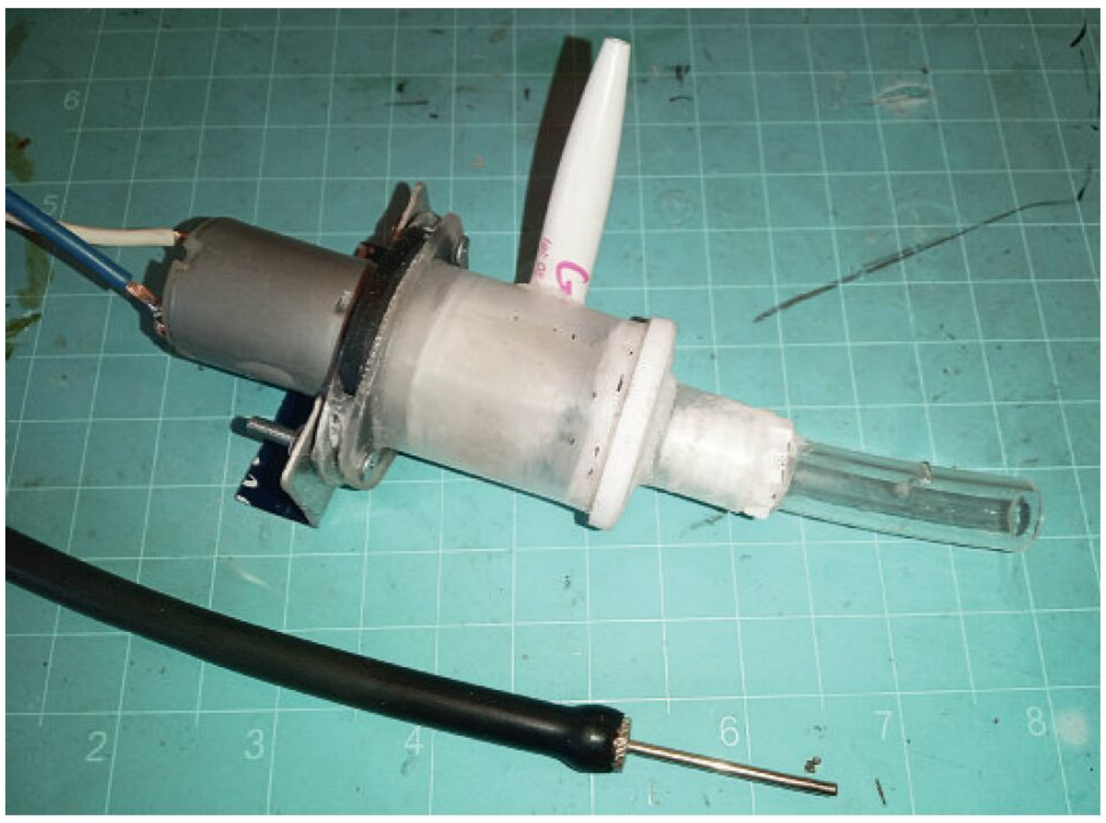
I recently purchased an Aero-Naut Firefighting boat with the intention of building it together with my grandson. The kit itself is excellent, but the monitor provided is non-functional and what 6-year-old doesn't want a working water cannon? No, no – this had to be remedied. I needed a pump and cannon.

Of course there are plenty of water pumps available online, but where's the fun in that? Much more interesting to me was making one myself, and after a bit of research (*i.e.*, watching YouTube videos over my morning coffee) I found a few people had created their own small water pumps using, among other things, a plastic syringe. Hmm, would one of these homemade devices really work as well as the video footage seemed to suggest? Only one way to find out…



Grahame's sketch, illustrating the construction his DIY water cannon and the theory behind how it will work in practice.

The pump before assembly showing the impeller, made from the syringe plunger.



The assembled pump alongside the proposed hose & nozzle.

"Would one of these homemade devices really work as well as the video footage seemed to suggest? Only one way to find out…"

As a first test I cobbled together a 5ml plastic syringe (rapidly discarding the separate needle as I suffer from trypanophobia – the medical term for big baby when it comes to injections) and the motor from an old micro servo. The finned plunger of the syringe was cut down and attached to the motor shaft to form the impeller, while the syringe tube functioned as the pump body. An inlet tube was then attached to the end, and a smaller diameter outlet was added on one side. I don't have a photo of this marvel of engineering but believe me when I say it looked rough!

But, as hideous as it looked, it worked really well, a lot better, in fact, than expected. So, of course, I then needed a bigger one; one that might look a bit less like some sort of torture device and which I'd not be quite so ashamed to share a photo of.

This time I used a 100ml syringe (many thanks to the local vet) and a 280-size motor. Instead of attaching the tube directly to the motor I cut a backplate from a scrap piece of thin aluminium and attached that with small screws into the motor mounting holes, with a tiny 'O' ring between. Then I cut down the plunger/impeller and fixed that onto the motor shaft.

Next, I cut down the tube of the syringe and capped the open end with the lid of a discarded pill bottle (I never knew medical supplies were so useful!) and drilled that to suit the intake tube. For the outlet I used the end of a plastic pen, because the tapered shape was perfect to attach a rubber tube to – note this time the outlet is at a shallow angle, not perpendicular to the pump body, as apparently this improves flow? The pump body was then attached to the aluminium plate with small nuts and screws, and an 'O' ring (tap washer) again. The intake tube proved to be larger than the rubber pipe I planned to use, so I made a reducer – and, again, it was medical supplies to the rescue, with part of an eyedropper bottle this time being repurposed.

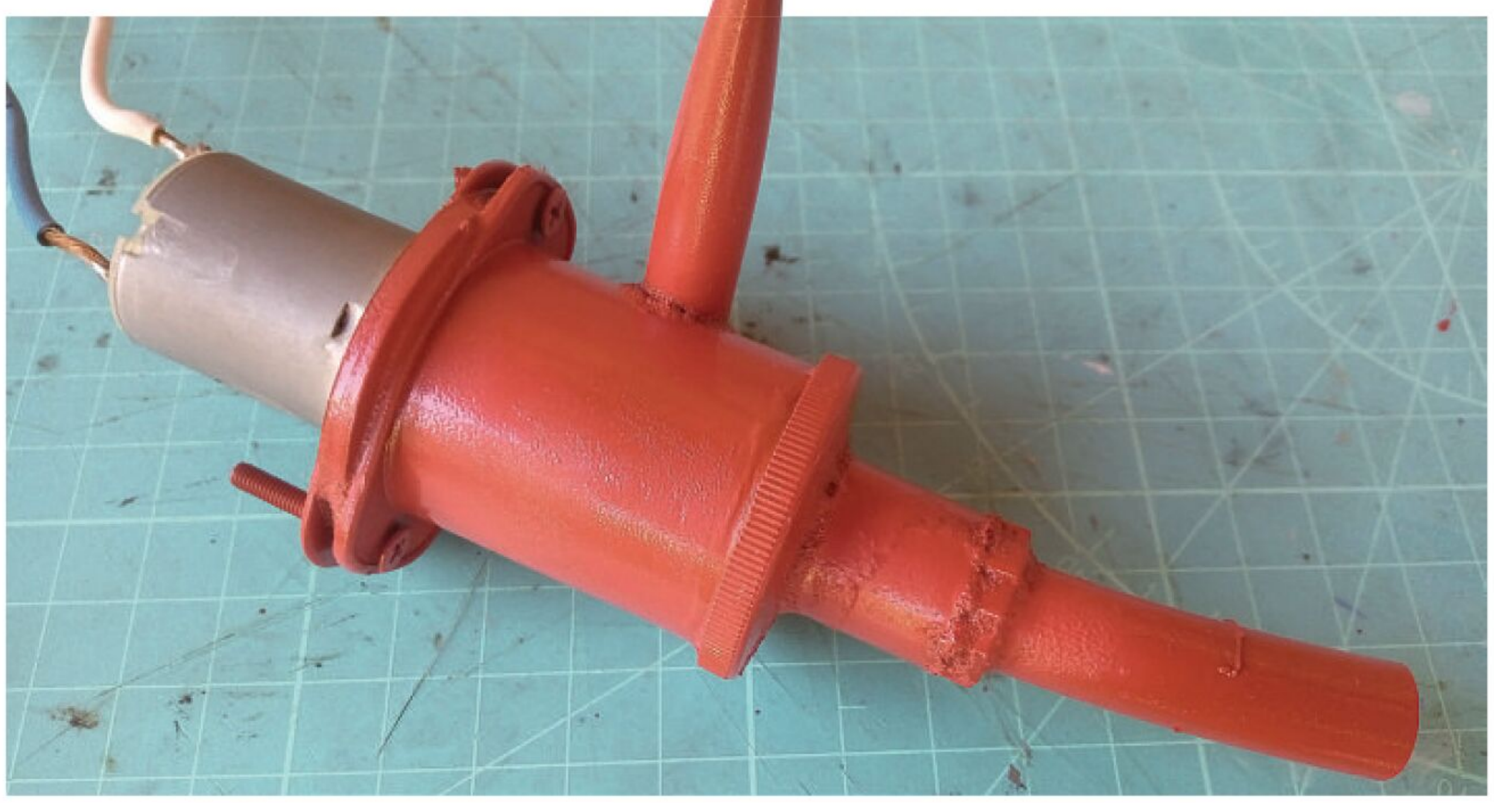
"Initially there was disappointment, as the pump failed to suck water upwards into the impeller. But what I then discovered was…"

OK, onwards to testing… Initially there was disappointment, as the pump failed to suck water upwards into the impeller. But what I then discovered was, if the pump itself is below the surface of the water, its gravity fed and works like a charm! I'm sure there's some sort of hydro-mechanical reason that it doesn't suck water up, but as the pump will be installed in the lowest point of the boat hull with the intake pipe attached higher, it's not a problem so I'm not going to worry about it.

At first I just used a piece of rubber tubing with an inside diameter of about 3mm as the hose, which was fine, but then I read if there's a smaller bore pipe on the end it creates more pressure, so I dug out a metal tube attachment used to inflate beach balls, air mattresses, *etc*, and that makes a big difference, creating a fine spout of water with a decent range of about 50cm. The little 280 motor buzzes away like a manic bumblebee on 7.2V or 9V, but there's not a lot of difference in the spray power.

The heat is on

So, success! Next, I need to make a working representation of the fire monitor - let's hope it doesn't involve a visit to the doctor, or worse, the vet! ●



It might look a bit rough, but it works!

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PART 2

Along came a Spider...

Dave Wooley completes his build of the Karakurt-E (Export Variant) Missile Corvette

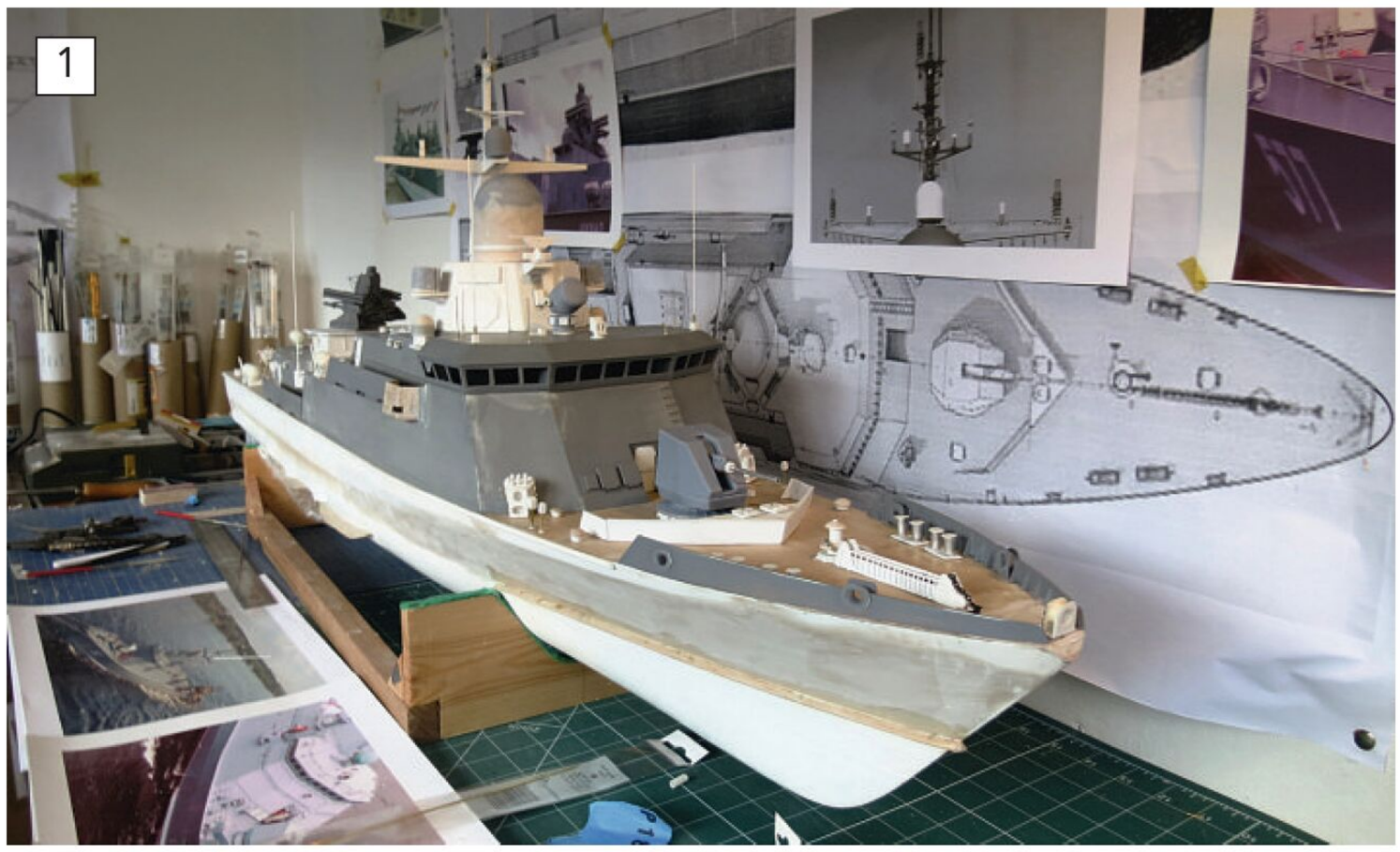
With the hull and superstructure prepared, a primer coat on the superstructure, and ballasting trials completed (all covered last month), we now move on to the various fittings, beginning with the forecastle. As mentioned in Part 1, to ensure a precise fit (once all surfaces have been airbrushed), each and every fitting features a locating brass pin (see **Photos 1-2),** and it's on this pin, rather than on the underside of the fitting, that the adhesive needs to be concentrated.

Many of the fittings added to the Karakurt were previously made for the *Soobrazitelnyy* (the build of which was covered in a series of articles run in this magazine between December 2018-June 2021), good examples being the cordage reels and the large mushroom vents located around the deck.

Knuckle boom crane

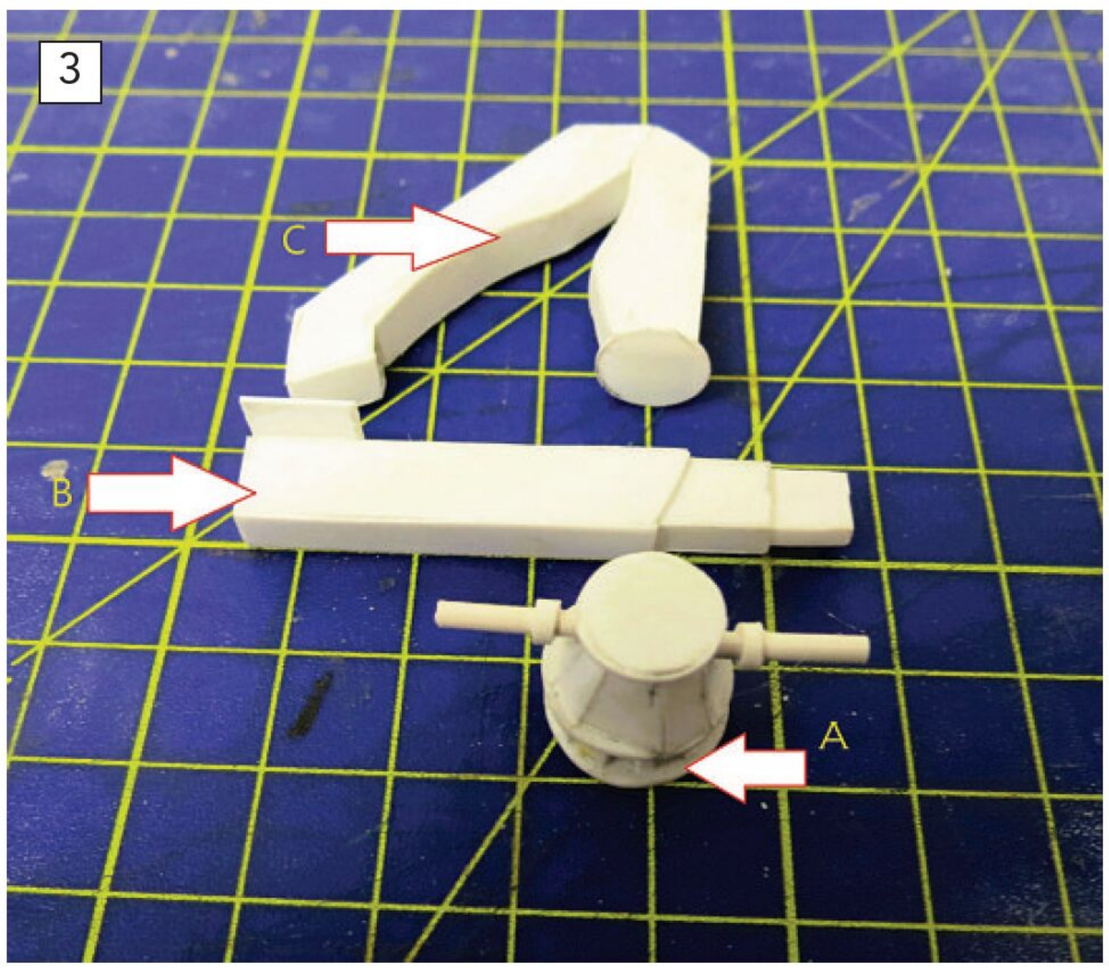
Many corvettes are fitted with a lifting device to launch and retrieve the RHIB (Rigid Hull Inflatable Boat). In this case, however, although images available do show a crane, the detail discernible just wasn't sufficient to model from with any degree of accuracy. Fortunately, there are plenty of drawings available online of

"Each and every fitting features a locating brass pin, and it's on this pin, rather than on the underside of the fitting, that the adhesive needs to be concentrated"

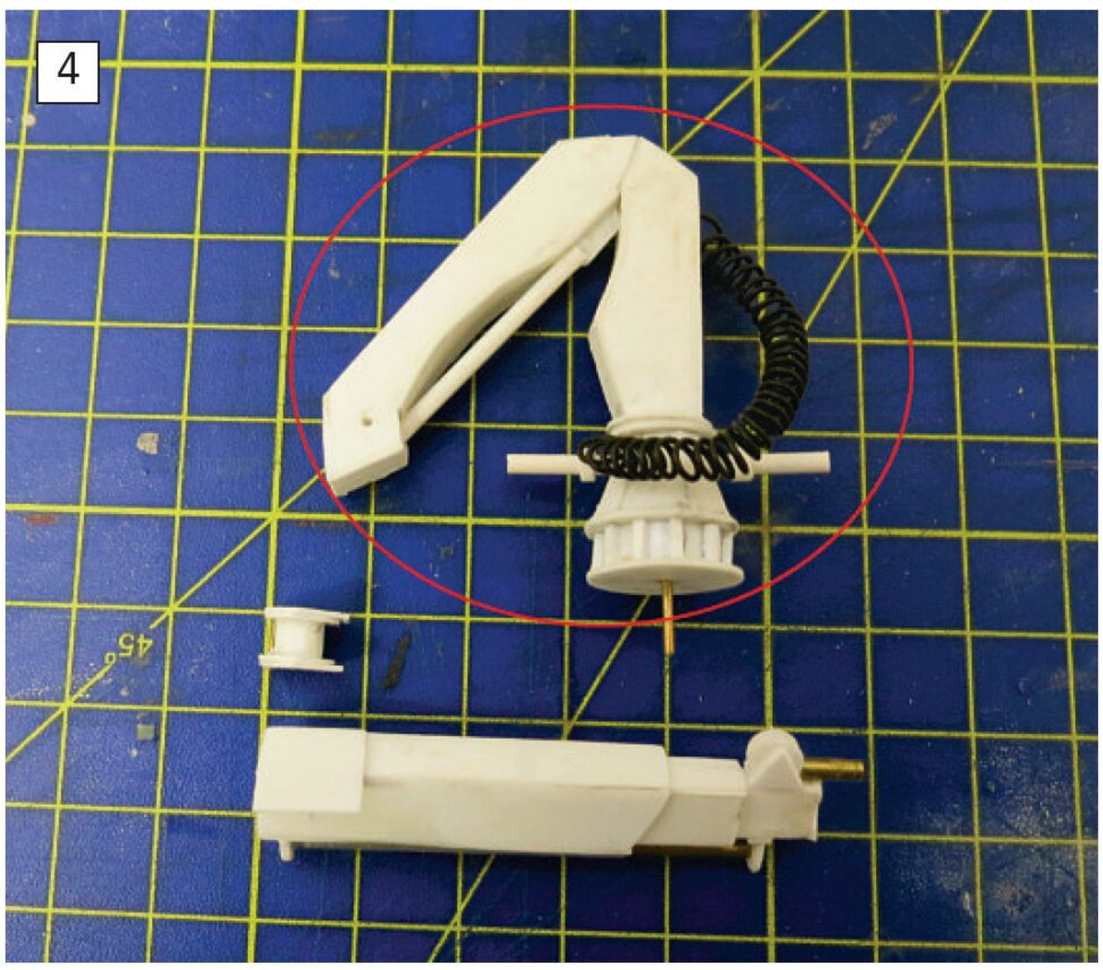


Dry fitting assembly underway.

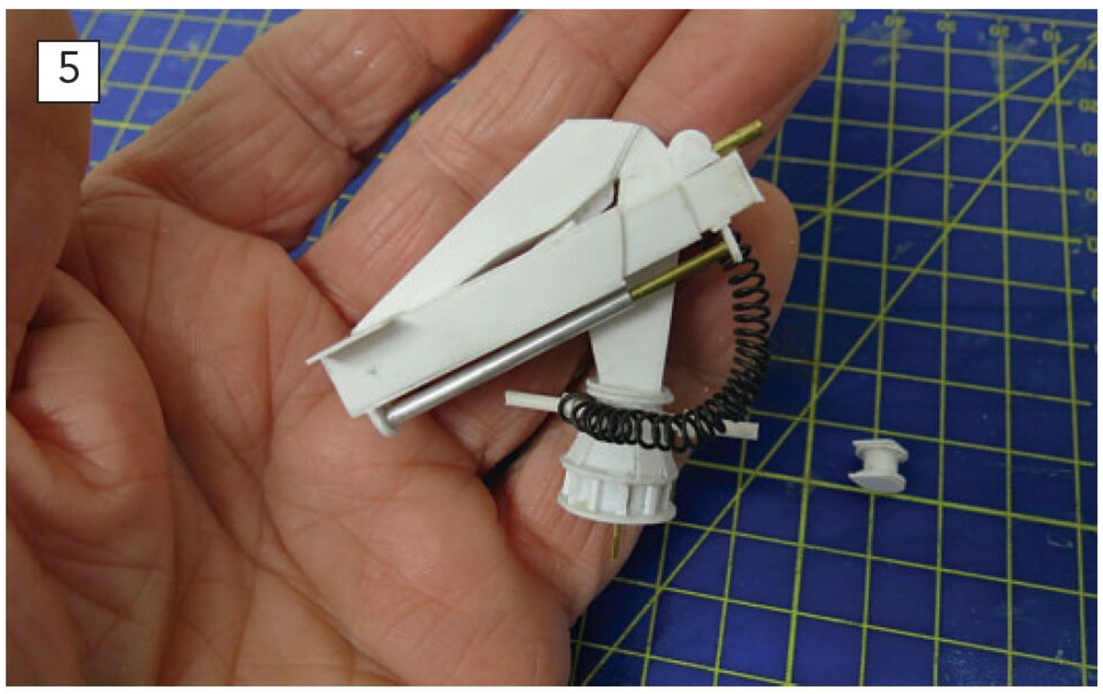
Locating but not fixing all the fittings prior to the primer coat ensures trouble free attachment following airbrushing of the model.



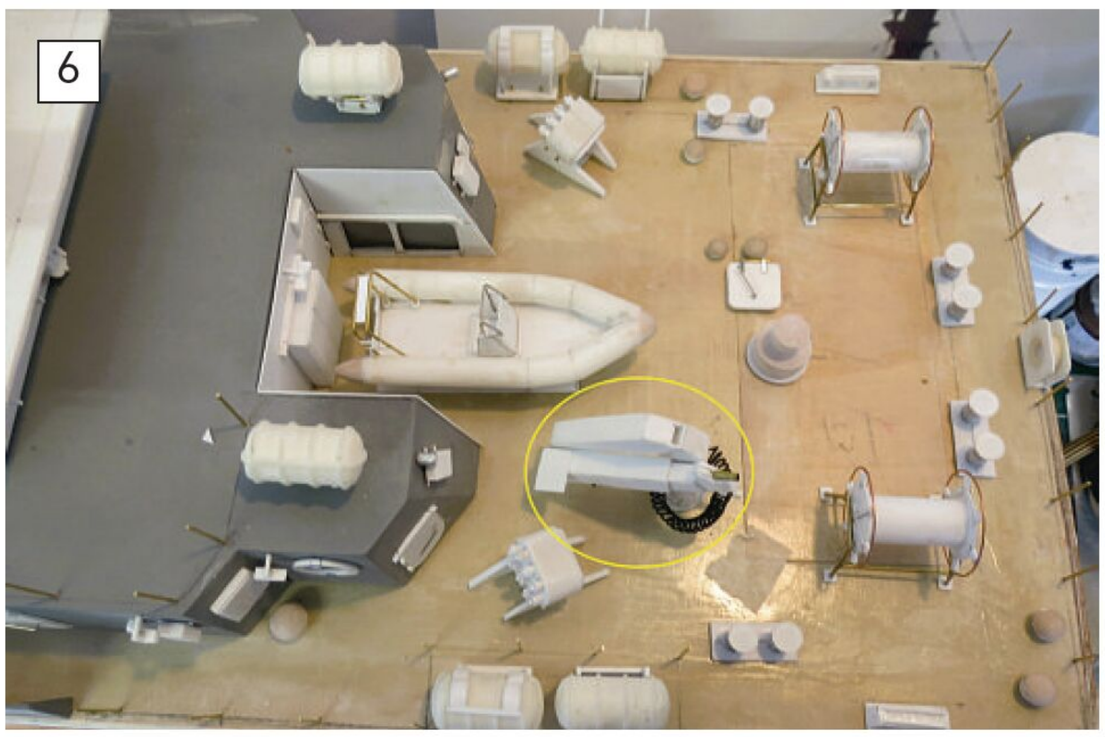
For ease of construction, the knuckle boom crane is reduced to three separate assemblies: A) the mounting; B) the extending arm and C) the knuckle joint /arm.



The knuckle joint arm fixed to the mounting, and the hydraulic arm and power cable (ringed in red) added.

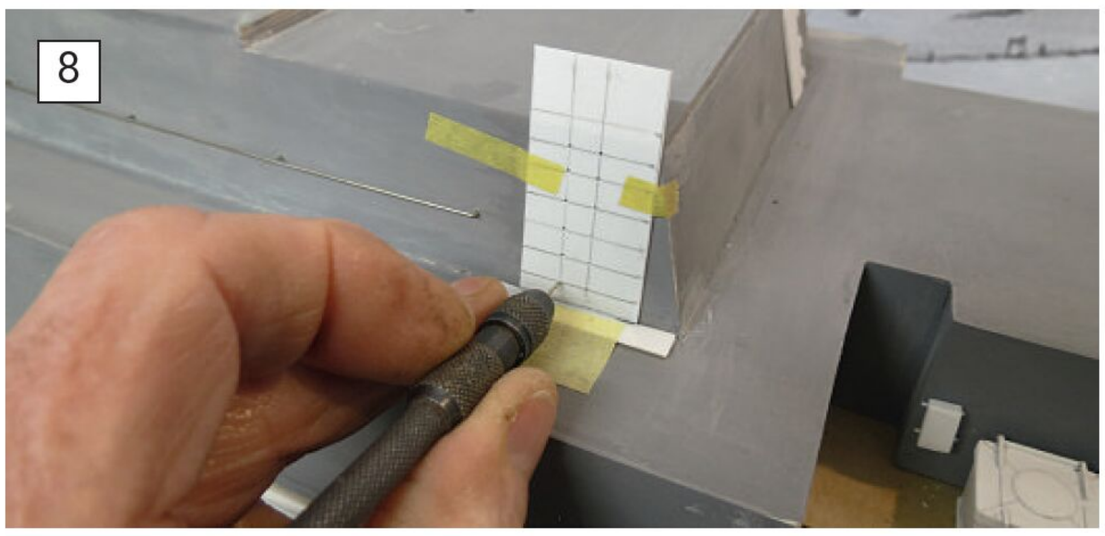


The fully assembled knuckle boom crane.

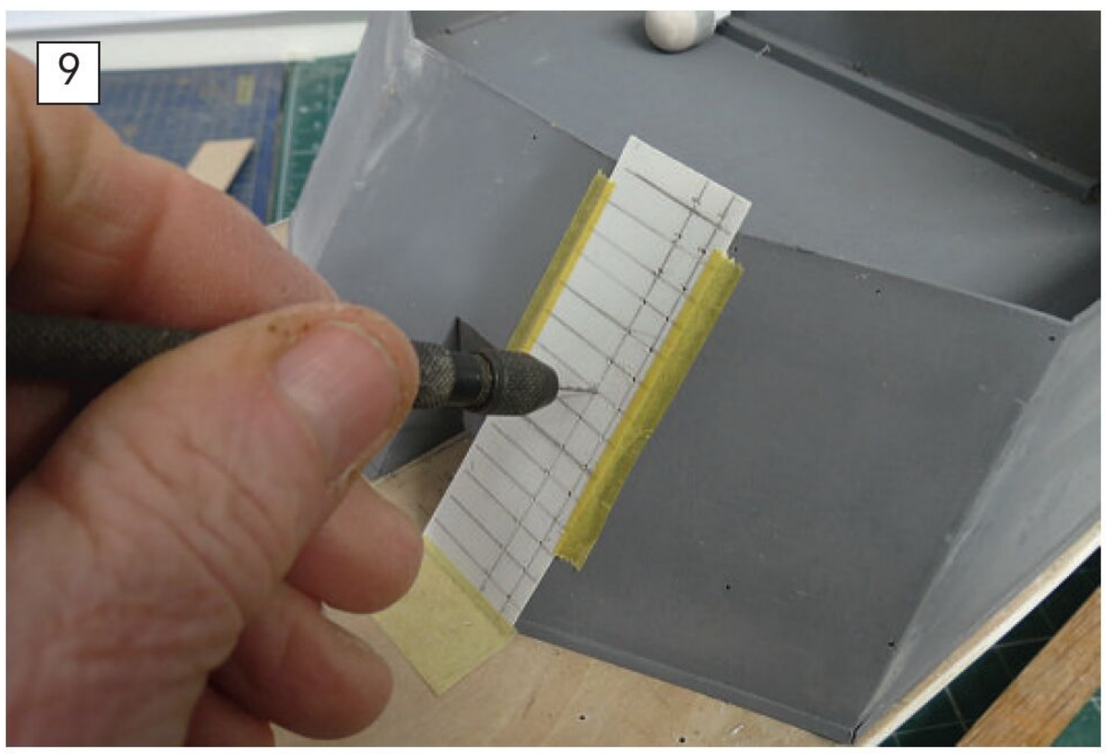


Locating the position of the knuckle boom crane (ringed in yellow).

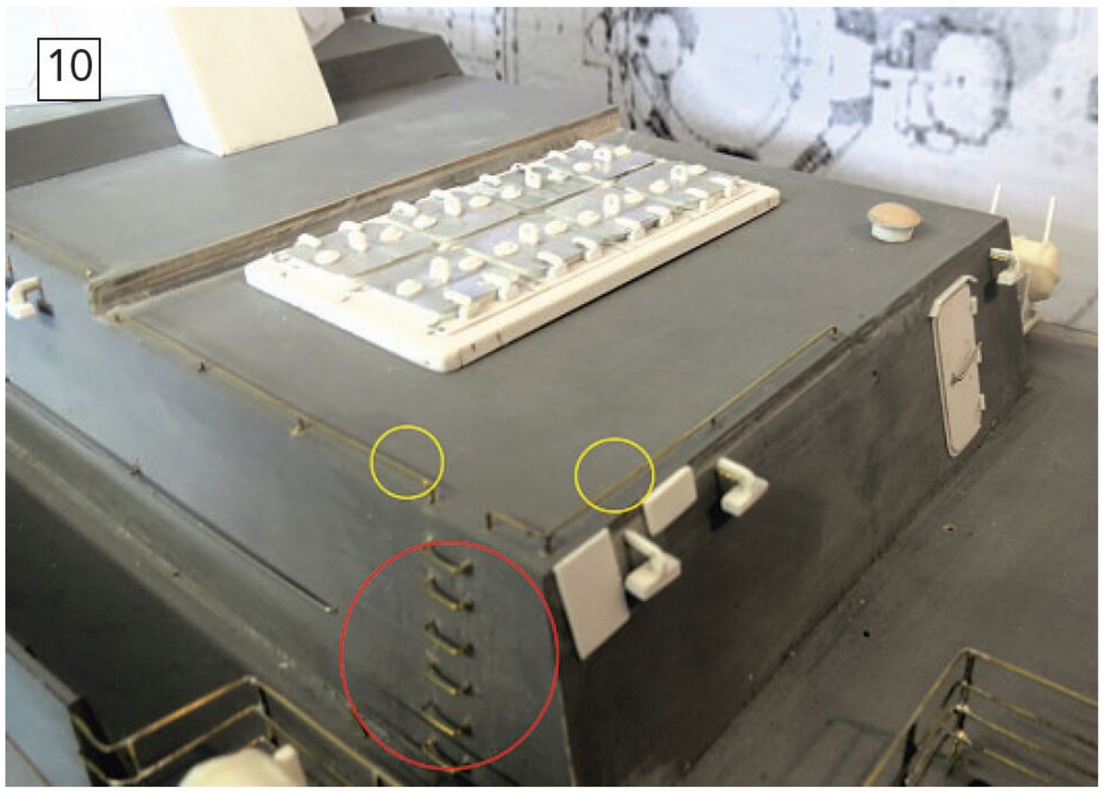
All the fittings, save for the rails, located to their correct positions.



The use of a jig and pin vice to locate the exact position of each rung of step and hand grips up the side of the superstructure.



A combination of jig and pin vice accurately locate the position of rungs up the frontage of the bridge.



Rungs installed up the side of the VLS deck (ringed in red). To ensure consistency of depth on the deck safety rail while fixing into position, several gauges of the same thickness are placed between the wire and deck (marked in yellow).

knuckle boom cranes and it was while browsing these I came across a couple illustrating the type used on the Karakurt. For its construction I used a method similar to that employed during my RMAS *Seagull* build (featured in the pages of Model Boats magazine during 2022).

Photo 3 shows the cane's basic structure reduced to a number of parts, and **Photo 4** shows other fittings such as hydraulic arms (aluminium and brass tubing) and electrical cabling added. The fully assembled crane can be seen fitted to its mounting in **Photo 5**, while in **Photo 6** it is shown (ringed in yellow) located in its correct position on the quarter deck.

With most of the fittings in situ, and prior to shifting attention to the ladders and rails, **Photo 7** shows the waterline and the exhaust outlets (ringed in yellow), part of the effort to reduce the level of IR (Infra-red Radiation) heat emitted from the exhaust on the full-size vessel.

Foot rungs and safety rails

Unlike ladders, these single rungs are located on the bridge frontage and at the side of the superstructure at the VLS level. Each rung is set into the surface via a series of pre-drilled holes. For this, a simple jig allowing each of the holes for the .40mm brass rungs to be accurately positioned (see **Photos 8- 9)** needs to be made**.** The safety rails are situated surrounding the top edge of the superstructure (see **Photo 10**); these, too, are formed

on a jig, with a spacer used to obtain uniformity in depth.

Deck edge rails

Unusually, the rails on the Karakurt deck edge are of a four-bar type, produced in a flexible nylon-coated material. My original intension here had been to use Krenik metal-coated flexible thread to represent them. However, fixing the eye into which the thread is held would, I'm sure, have proved very problematic, so I instead soldered a .40mm brass wire inboard of each stanchion. If following my lead, firstly, each stanchion must be cut to length and located to the deck edge (see **Photo 11)**. They then need to be transferred to a jig with the spacing marked to correspond with their exact position on the deck edge before solder paste is applied to the joint /intersection of each stanchion and each horizontal bar (see **Photo 12**). A completed section is then cut to length and fitted into place (see **Photo 13**).

To ensure no paint flakes off the brass fittings, I would recommend spraying the surface of the brass with Halfords' Etched Grey primer.

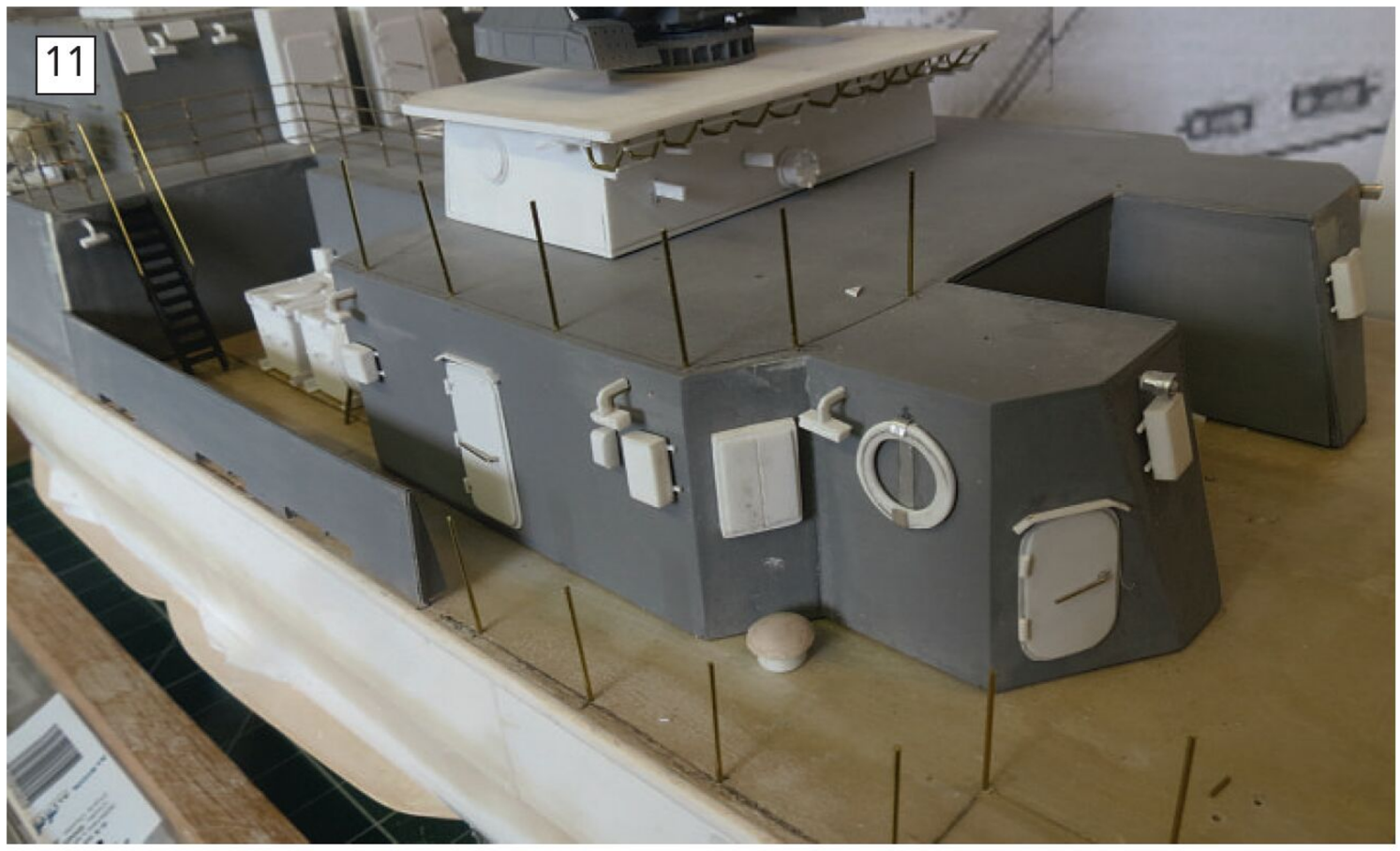
Primer and preparation

Prep for airbrushing is one of the most important first steps for a successful painting schedule. As I've explained on many occasions, regardless of material used in the construction, the key to arriving at a good finish is to prepare the best possible surface for the primer coat. With timber being the material used for most of the construction here, an initial two coats of sanding sealer will be necessary.

Following the pre-primer prep, it is advisable that the timber surfaces be sanded down with 400 wet and dry, and filler applied where necessary to any of the external joints.

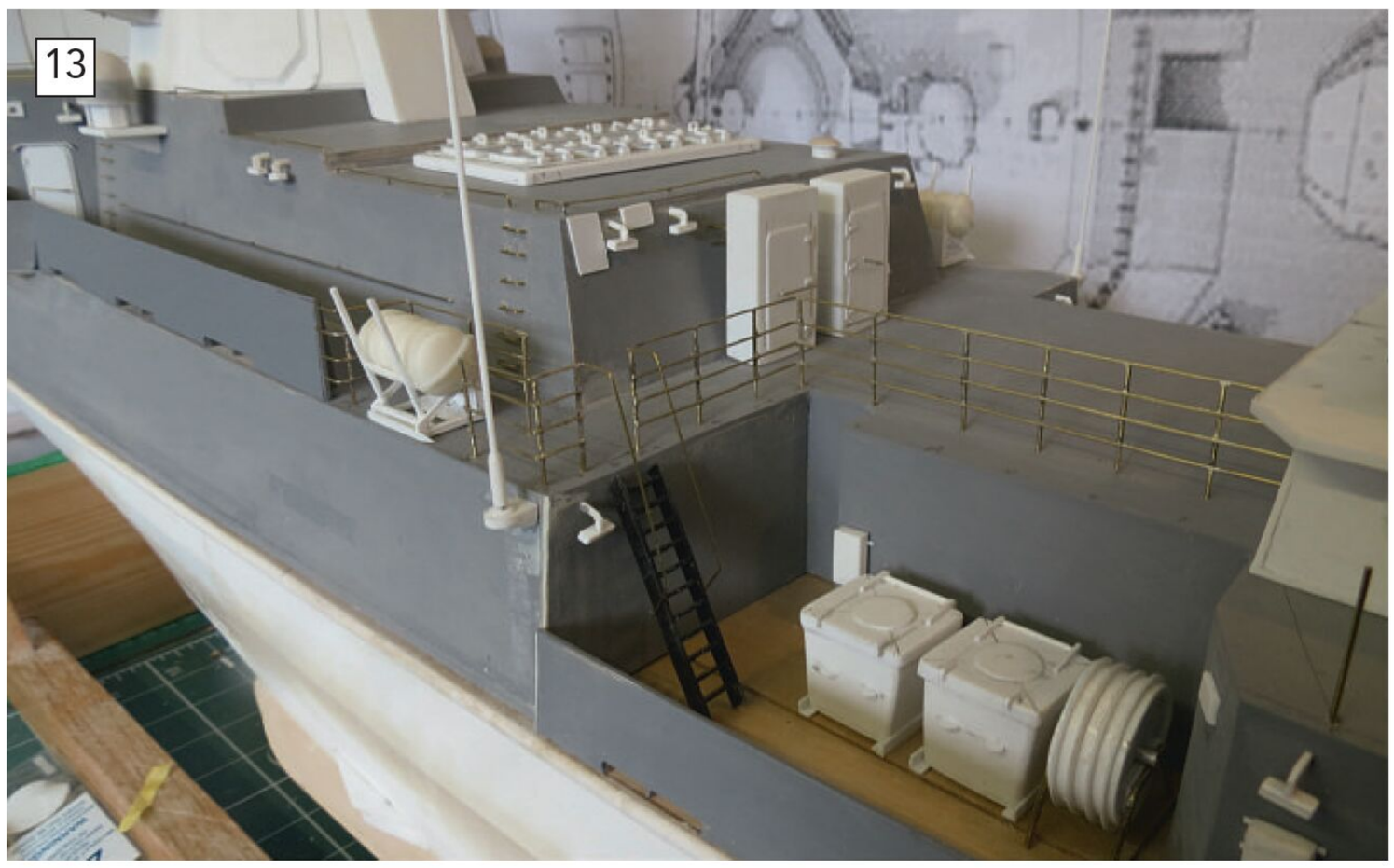
Generally, the finished surface on warship models is pre-determined. However, as I had opted to for something a little bit different here, *i.e.*, one the Karakurt's proposed export variant camouflage schemes (see **Photo 14),** a firm decision had to made on the colours I would use (see **Photo 15)**. Good matches are available in the Mr Hobby range, so H67, a light blue, was selected as

"The key to arriving at a good finish is to prepare the best possible surface for the primer coat"



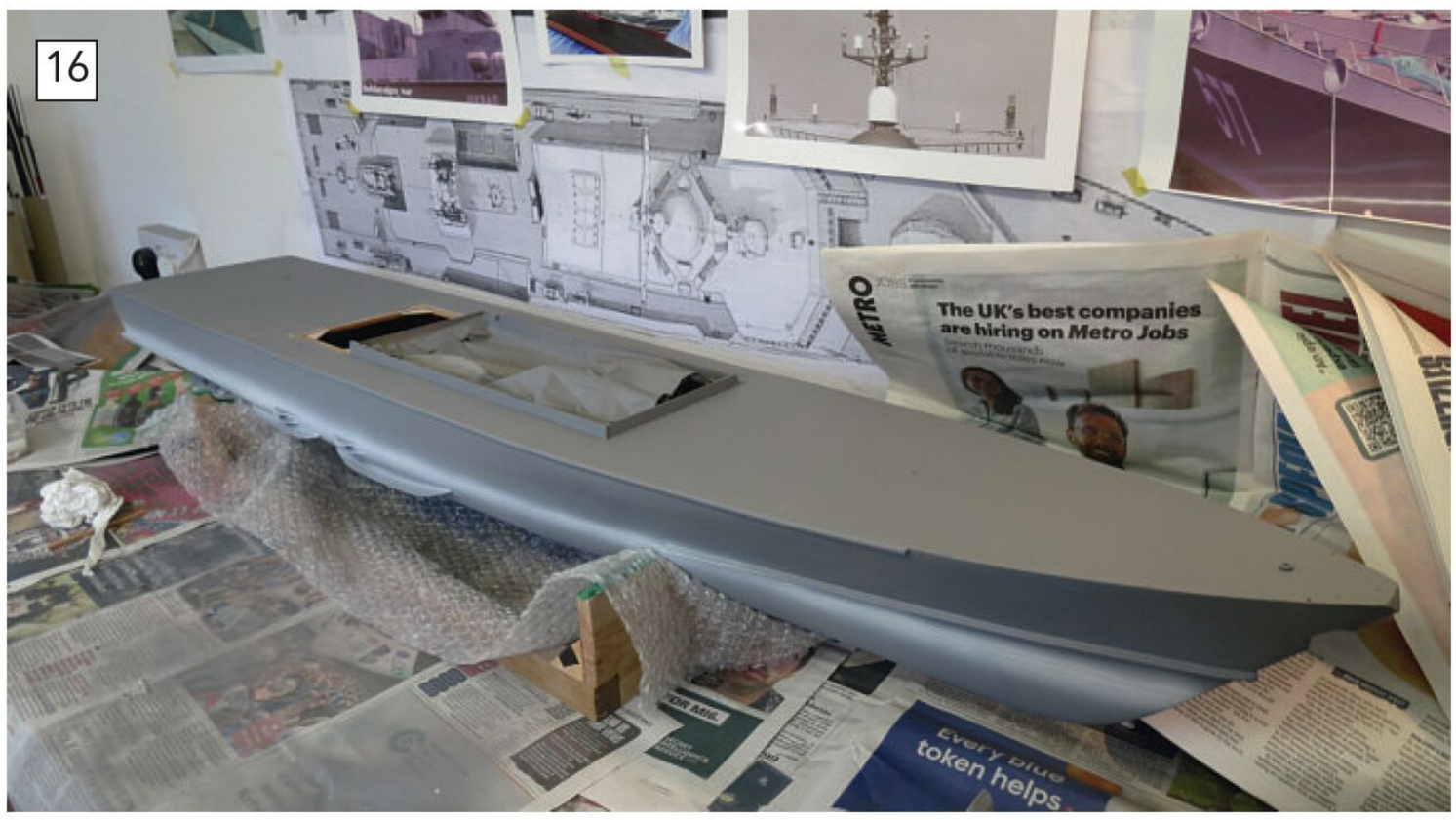
Stanchions of .8mm cut to size and located to the deck in preparation for being transferred to a jig for assembly of the four bars, each .4mm thickness.

The use of a jig and solder paste to form the four bar rails.

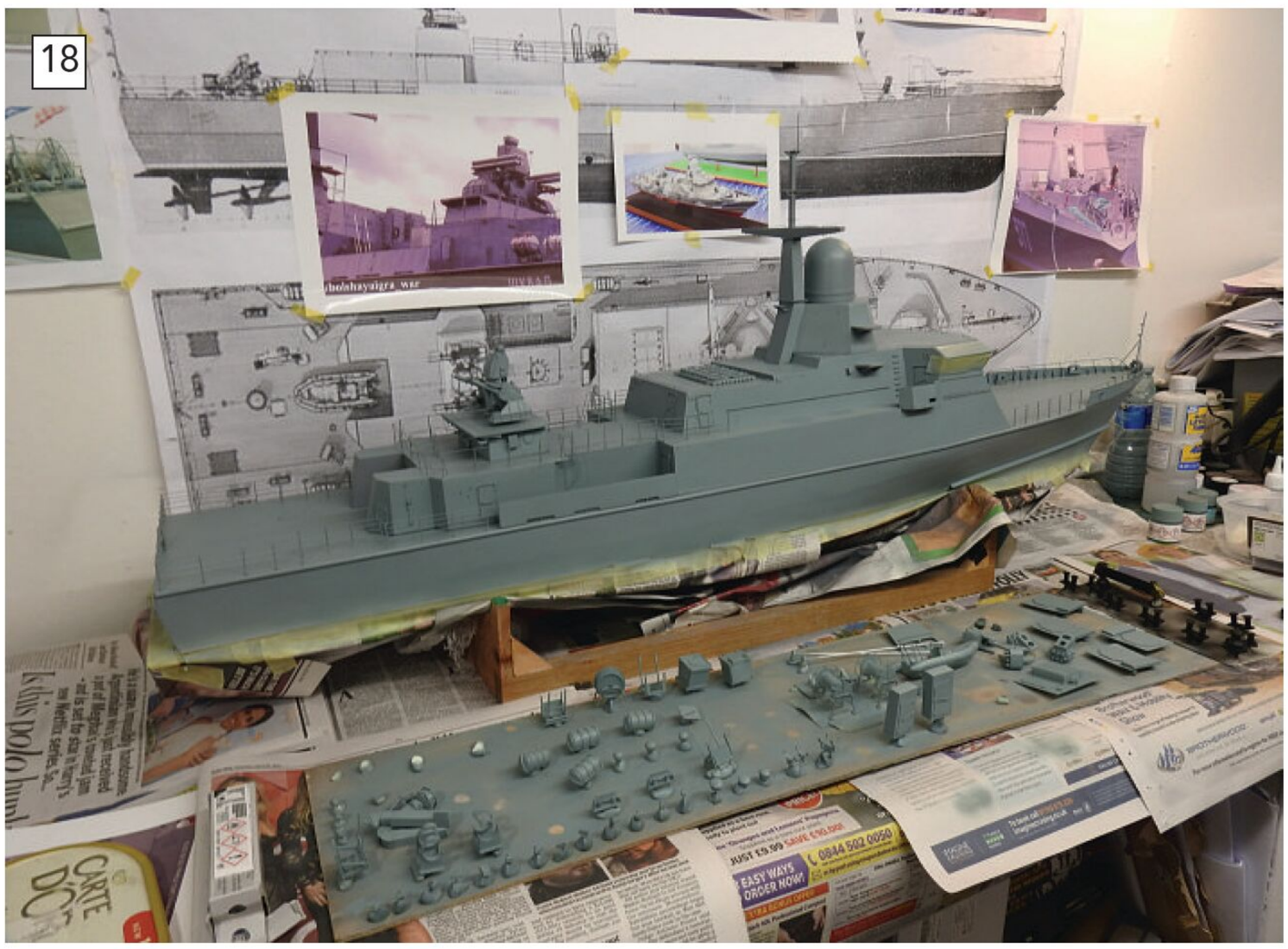


Locating part of the four-bar rail amidships to port.

Taking advantage of a conceptual camouflage scheme produced for the Karakurt export variant.



The hull and deck with the second of two coatings of Halfords acrylic grey primer applied.



Applying the Mr Hobby 67 light grey basecoat to the superstructure, hull, and fittings.

Some of the material used for creating the camouflage shapes. Dave found the tape dispenser particularly useful. The green coloured tape was not required here but is perfect for masking curves.

With the glazed bridge windows masked, the superstructure is also now prepared for its second coat of Halfords' grey primer.

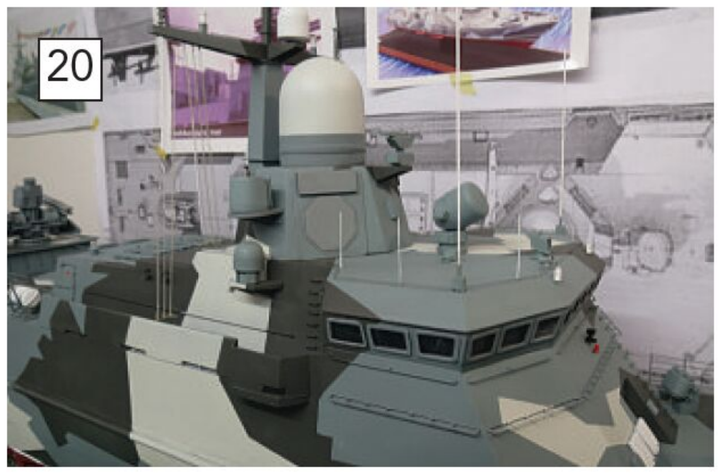
the overall base colour, which would be co-ordinated with two different shades of grey, H311 and H83. My primer of choice, though, was Halfords' flat grey.

The Karakurt's hull needs to be given several coats of primer, rubbing down and filling any surface flaws between coats. Once I had done this, a band of off-white boot topping was applied, later masked off with 2mm wide masking tape (see **Photo 16**). As the bridge remained removable, the internal area was also primer coated. This was followed by a base coat of Mr Hobby 67 along the area of the windows.

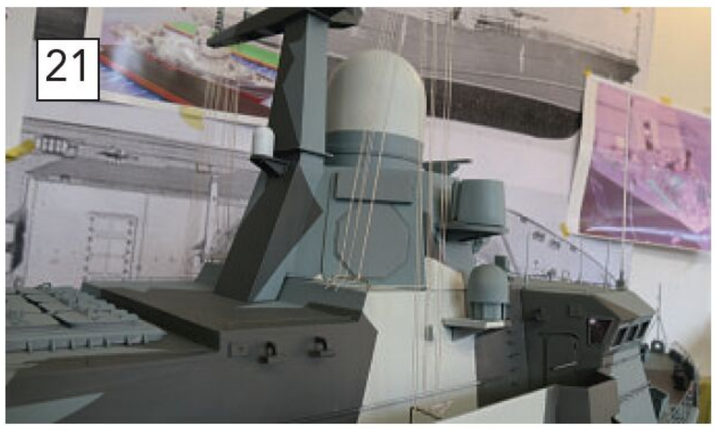
Once dry, the bridge can be removed, and the windows glazed with 1mm acetate. This area can then be masked off and work can begin on blending the bridge with the superstructure (see **Photo 17).** At this stage I applied red anti-foul Mr Hobby 100, and after this had dried, the underside was masked off in readiness for my overall basecoat (Mr Hobby 67).

In preparation for airbrushing, all the fittings first were carefully laid out on a suitably prepared surface before my overall basecoat was applied (see **Photo 18).**

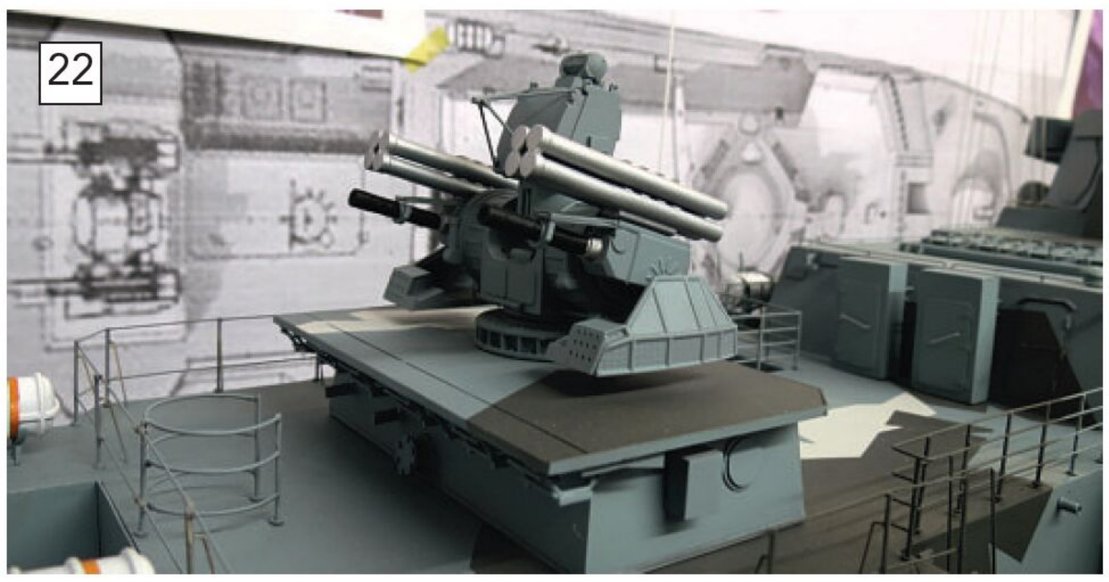
Masking off is time consuming, but the general rule when applying a camouflage scheme is to apply the lightest shade (base colour) first, followed by the application of progressively darker shades.



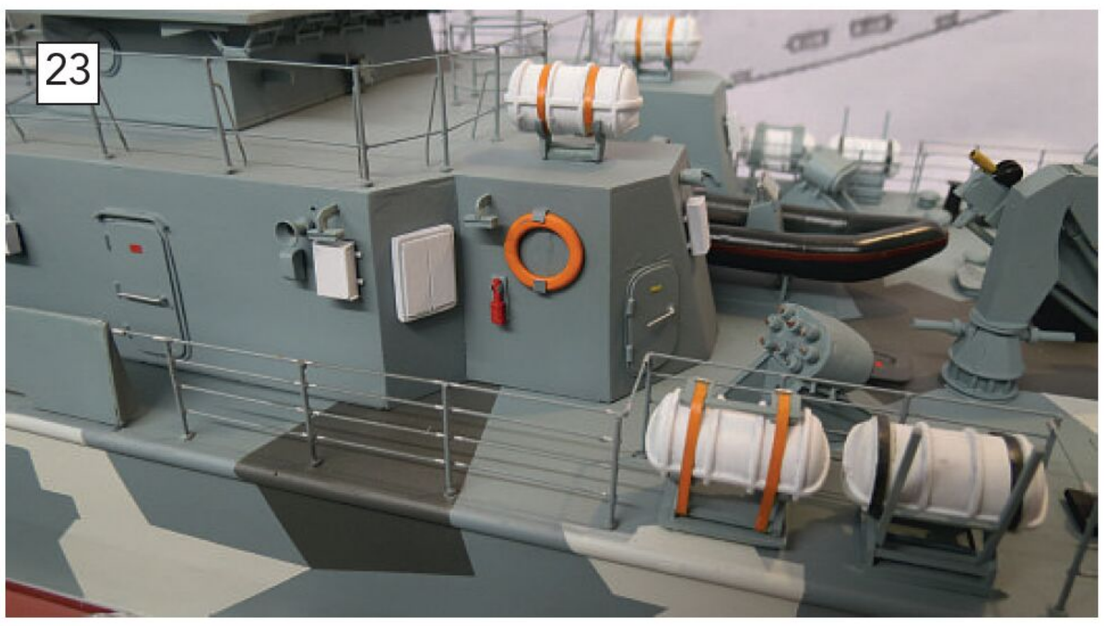
With the camouflage finish complete, fittings are fixed into place on the bridge roof.



Moving further aft, and with the airbrushing complete, the halyards are rigged from the spar to the main and 01 decks.



From the third of the class onwards, vessels are fitted with a Pansir gun/missile system. Here we see camouflage scheme applied to the platform supporting the Pansir CIWS (Close In Weapons System) on the model.



A view of the arrangements on the model's portside aft. For unknown reasons, the Karakurt features three distinct types of mountings for the life raft containers.

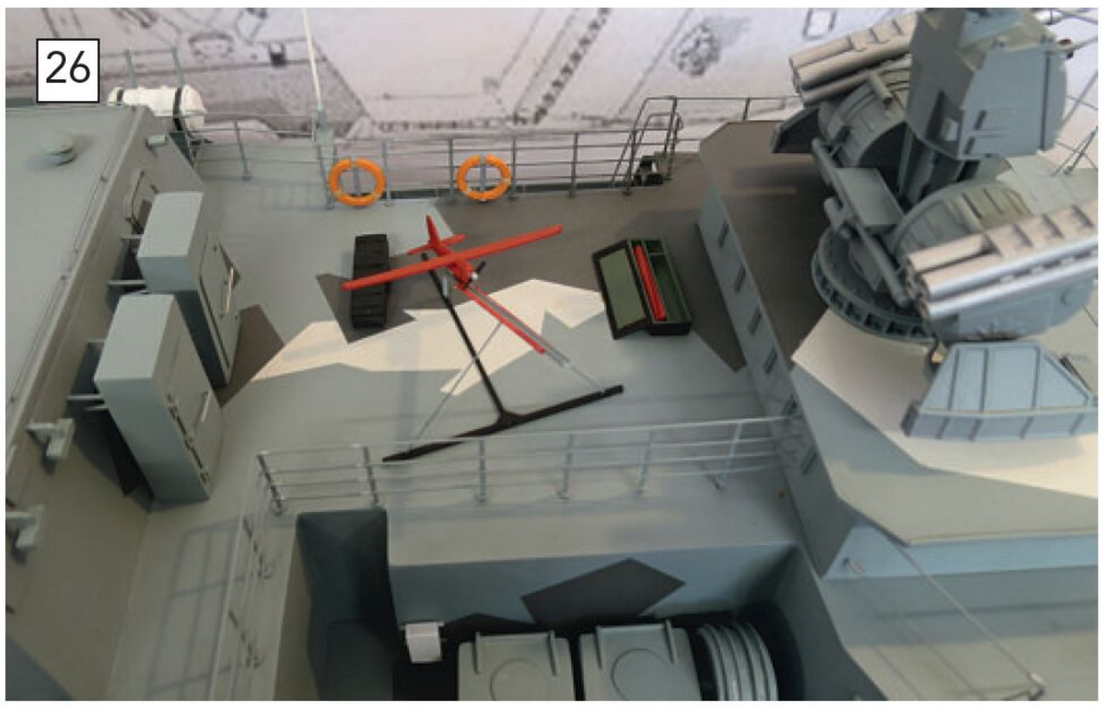
Camouflage scheme and application

The reason I chose to go for a camouflage scheme rather than the grey livery seen in all the available images of the Karakurt is that this would change the visual dynamic of the model. This scheme is, of course, based on a concept for the export variant rather than one carried by a particular vessel and as such allows for a degree of modeller's licence.

The Mr Hobby 67 light blue grey basecoat was the easy bit. Fortunately, however, help was at hand when it came to Karakurt's complex camouflage scheme, as I was able to consult Dave Howard, who had provided invaluable advice and assistance with similarly tricky finishes on my two previous builds. Given that this design was more of a splinter variant, he suggested we go for a low tack masking tape, using various widths. It is here that the dispenser shown in **Photo 15** proved a real asset, as it not only dispensed all the widths required but had a built-in cutter. However, aside from that little tip, rather than go into all the time-consuming techniques involved in the masking process (which I am sure many of you will already be familiar with), I will move swiftly on to show the final results (see **Photo 19-24).**

The quarter deck aft on the Karakurt is remarkably busy, yet only a recess has been provided for the RHIB. Here, the camouflage scheme on the model has been extended to the deck surface.

"This scheme is based on a concept for the export variant rather than one carried by a particular vessel and as such allows for a degree of modeller's licence"



The Orlan-10 drone installed amidships on Dave's model of the export variant.

The 1;1 Karakurt making its way down river for trials.

Dave's 1:50t scale Karakurt undergoing initial trials.

The Orlan-10

While reviewing all the images I'd sourced for reference purposes, I was intrigued by the fact that one photo showed a small red coloured drone with a launcher sited aft, this being on one of the first two of the class to be commissioned. I've since learnt this is a reconnaissance drone, known as the Orlan-10. I decided, therefore, to add this drone amidships to the rear of the Pansir CIWS (the only vacant space on my model that could accommodate a drone and launch ramp). I've also included the drone stowage box, which contains a spare pair of wings (see **Photos 25-26).**

"This is a reconnaissance drone, known as the Orlan-10"

On the water

In the images of the 1:1 scale vessel I'd gathered for reference purposes, the Karakurt appears to be a very stable craft (see **Photo 27**). So, having completed the build, it was with some trepidation that I first put my model on the water to see how she performed and whether she would look convincing as a Karakurt Missile Corvette. In terms of the latter, I will let you judge for yourselves (see **Photos 27-28**), but, personally, I am very happy with her.

Then, in June (2024), I took both my Karakurt and Tornio Finnish missile boat models along to the Military Boat Day in Bournville. Bourneville boasts a much greater expanse of water than I have available to me closer to home, yet conditions are very similar, so I was keen to see how both the Tornio and my latest build, the Karakurt, performed. I was not disappointed!

Who needs plain sailing!

A number of navies are beginning to appreciate the value of small warships that punch above their weight; the latest designs are fast, increasingly stealthy, and much less of a drain on allocated military defence budgets.

For me, building the Karakurt was not without its challenges. I am, however, now reaping the rewards of a scale model that not only looks a little different but can be confidently sailed even in distinctly choppy conditions. ●

Dave's Karakurt (to the fore) and Tornio Finnish missile boat models waiting to go into action at the Military Boat Day in Bournville back in June.

The Karakurt being put through her paces on the water in Bournville Warship Day.

Full speed ahead, making use of the superb expanse of water at Bournville.

Acknowledgements

Points of reference

- Small Missile Ships - Project 22800 (russianships.info)
- Project 22800 Karakurt-Class Corvettes (naval-technology.com)
- Wikipedia (the source of all images of the full-size Karakurt illustrated in this feature)

Sincerest thanks to:

- Naval architect Peter Brown, for the superb modellers draft of the Karakurt
- Mark Hawkins, for his impressive 3D work on some of the components for the model
- David Howard, both for the camouflage scheme skills he shared and his assistance at the Bourneville Military Boat show.

model Boats

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Scratch built stunner

PART 2

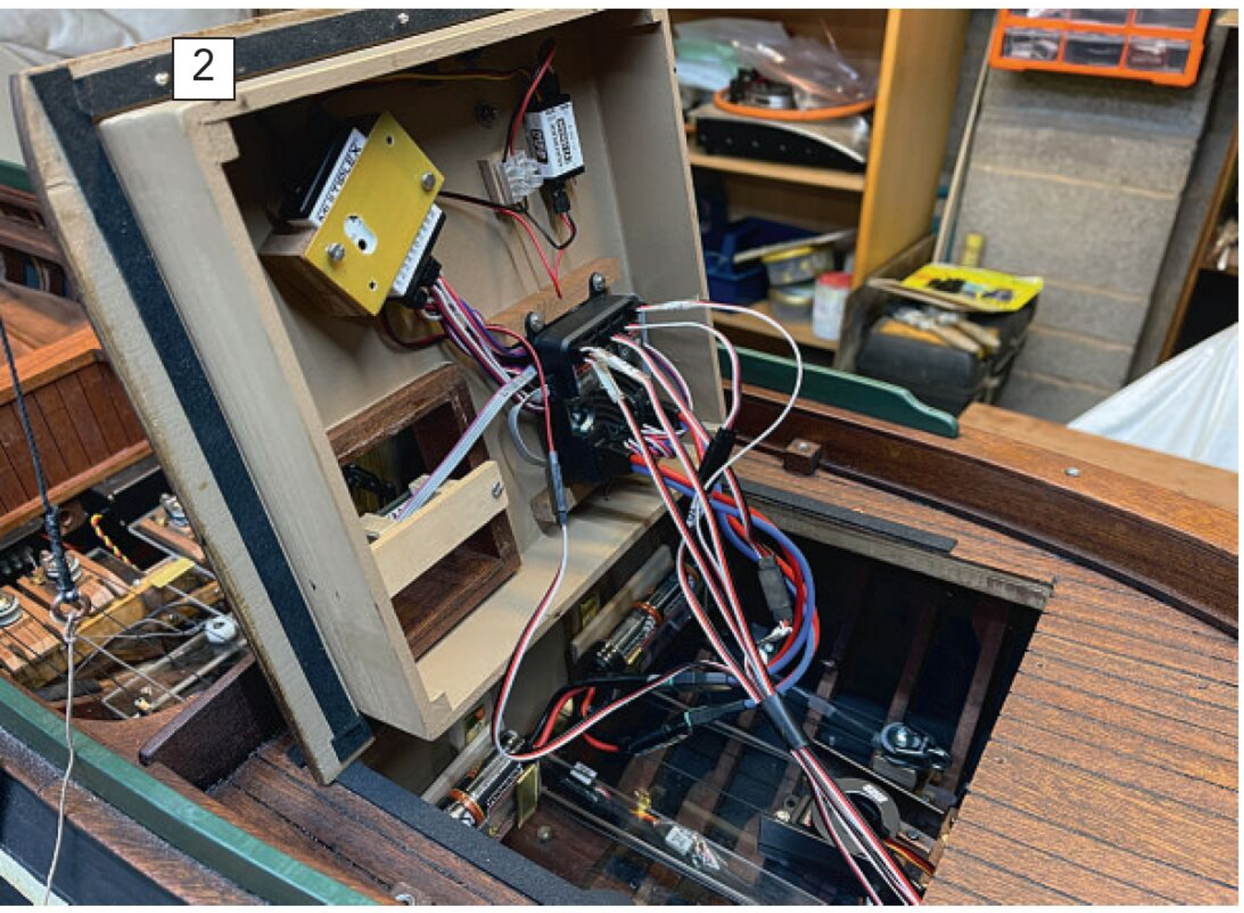
AN CAILIN ALAINN

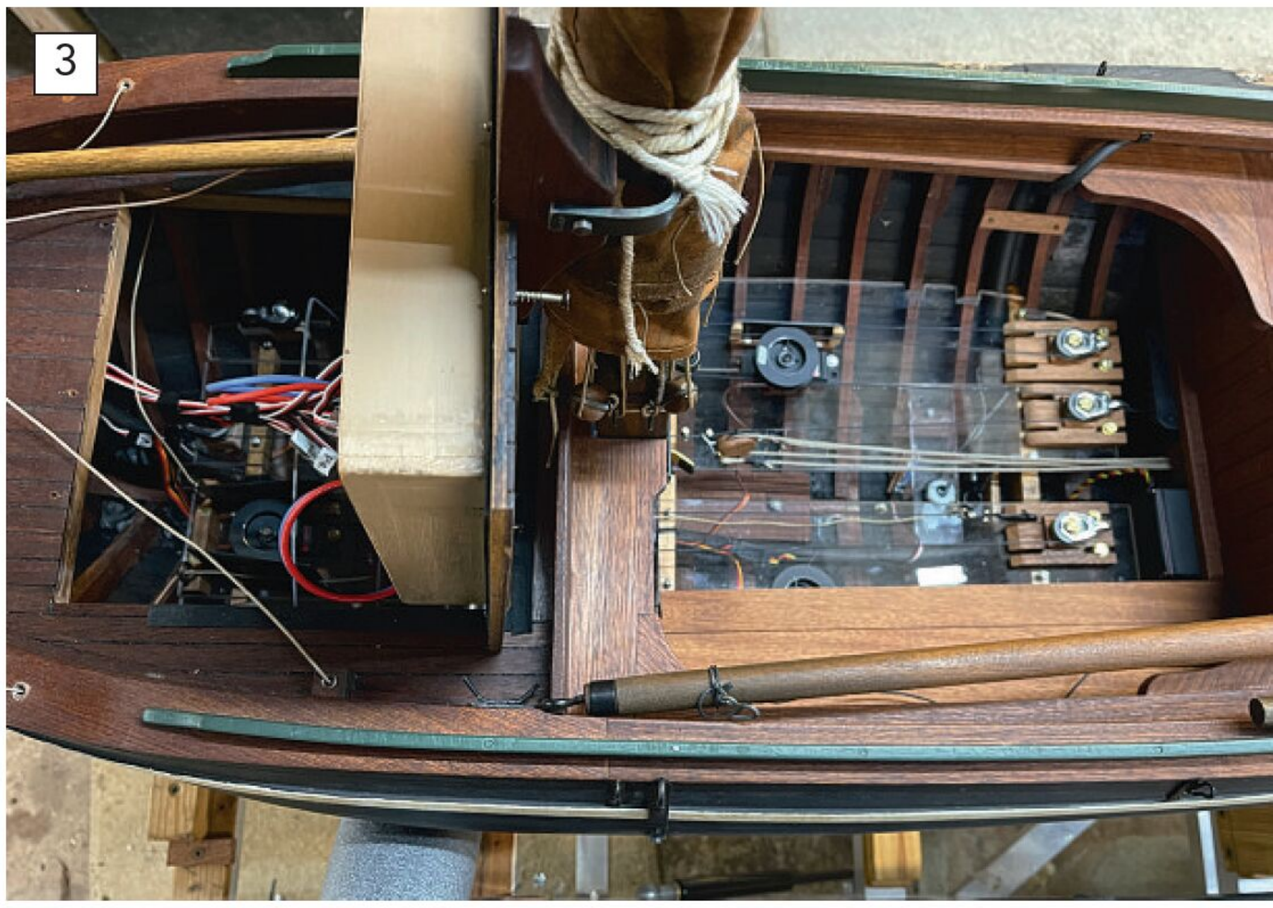
Every picture tells a story as **Tony Judd** completes this ‘show and tell’ coverage of his 1:8 scale Galway hooker – and what a looker!

Having last month completed the hull, keel fin and ballast bulb, I shall now move on to show you how I tackled the controls and, as far as I am concerned, the most fun part – the mast and spars and the all-important sails, before finishing with some of my thoughts on this model following initial on the water trials…

Photo 1

Here, the four sail winches have been set out on a baseboard. It’s much easier to set up the control loops and program travel and reverse from outside the hull. The outside winch loops are for port and starboard staysail sheets, but the jib sail uses a single loop with the port and starboard sheets attached to each side halfway along. Thus, when the winch winds in on the port sheet it is letting out on the starboard one. The length of run available, 20-inches (500mm), isn’t enough to do this with the staysail, which has a longer foot. The main sheet is a simple pull and





ease away but pulls on all four sheet lines (more on this later).

The winches selected are King Max SW 22 HVs (only available directly from China, but which can be ordered via Ali Express); these are small yet powerful and, so far, have proved to operate very smoothly. Steering is by a Hitec 785HB, mounted in the aft bulkhead.

The orange handset is a Multiplex Multimate, and this is being used to program the voltage sensor; a voltage increase indicates water present, and the sensor sends an alarm to my earpiece.

The rudder winch is not in view, as this is fitted to the aft bulkhead. This shuttles two taut lines to traverse the tiller; rather like the jib winch, except both lines must be taut at all times. Winding out one way, winds in on the other, and the tiller position is adjusted.

Photo 2

Under the fore hatch lie all the electronics. Clockwise, from top left, are a Multiplex 7-channel receiver – telemetry enabled, a voltage sensor, and an Evolution power box, which transmits power directly to the winches and not through the receiver. The power box receives instructions from the receiver and passes these to the winches. It also boosts signal strength to remote winches and regulates system voltage. Bottom left, mounted in the scuttle hatch, is the on/off switch, which can be accessed from outside when the main hatch is screwed down.

Photo 3

A general view of control arrangements below deck; note that the 20-inch (500mm) run for the loops has to pass the mast, a tricky thing to achieve! All four loops are separately mounted on 5mm thick clear acrylic sheet, which is so easy to work with and fashion – provided, of course, you have the correct drilling and cutting tools. The original purpose of selecting this was to keep the hull framing visible, but an added bonus is that I can actually see how much water is collecting.

A central panel fore and aft the mast prevents ropes getting caught but can be removed for access and to test the bilge pump (by manually lifting the float switch).

While perhaps difficult to view here, to the right, there is a transverse line of four return pulleys. Between Nos. 2 and 3, and below them, is an aquarium self-priming pump. This is operated by a laboratory 6/12-volt float switch, the stem of which is let into the top of the keel to keep the float range low and start the pump with a minimum of depth of water ingress collecting. This pump runs on a separate battery stored under the cockpit sole (floorboards).

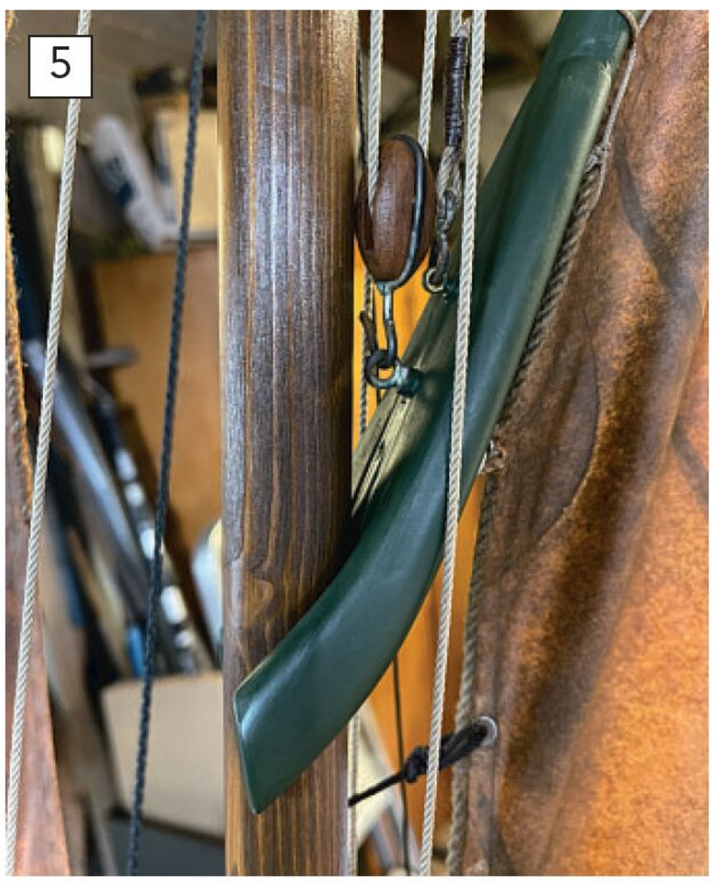


Photo 4 & 5

The gaff spar on a hooker is set very steeply, so it's difficult to make it engage properly with the mast unless the forks of the gaff bend upwards. Since these are a source of weakness at the best of times, the grain of the wood needs to follow the fork's upward curve. The wiggly branches of oak trees provide plenty of strong 'compass' timber for real boats, but for this model the solution came from hazel 'bolts'. These are the new shoots that form when a hazel has been pruned or coppiced, which, having sprung forth from the sides of the tree, turn 90-degrees before growing almost straight upwards. They're not suitable for the spar itself but can be fashioned into strong gaff forks or jaws. **Photo 4** shows the 'bolts' that were not chosen.

"The wiggly branches of oak trees provide plenty of strong 'compass' timber for real boats, but for this model the solution came from hazel 'bolts'"

Photo 6
The very simple rig uses just 14 blocks, and four of these are located on the topping lift - a powerful tackle used to lift the aft end of the boom and help with hoisting and peaking the mainsail. This tackle is released to tension the leach (aft edge) of the sail after hoisting to position. On the real vessels, this was also used to hoist livestock in and out of the cockpit and open hold areas.

Most blocks are 'iron bound', *i.e.*, formed from flattened steel garden wire which is then silver soldered. The other fittings were made up by employing the same method on steel flat bar and stiff garden wire. Simulating rust convincingly is difficult. I shall leave this to those who have honed their weathering skills, as I am sure in time I will start to see the manifestation of real rust!

Photo 7
In this view of the cockpit area with the sole (floorboards) removed you will see two single blocks on the main boom. The mainsheet is in an M formation, a single length of rope. The two peaks of the 'M' are the blocks. The 'V' of the 'M' goes round another single block below. Each end of the sheet is attached to this block. This in turn is attached to the control loop, so all four parts of the sheet are pulled at once, *i.e.*, the legs of the 'M' and the 'V' part. The block below is the balance line, as the two arcs of the boom blocks have different radii as the boom is let out.

Photo 8
I take sail making very seriously! Here the full mainsail is being marked out on cartridge paper, from dimensions obtained from setting up the actual spars on the model. A template will be cut out and checked by pinning or clamping it to the spars and adjusting. Diagonals cement the shape of the sail. This sail is enormous, 1,400 sq. inches, almost 10 square feet, or 1-metre square.

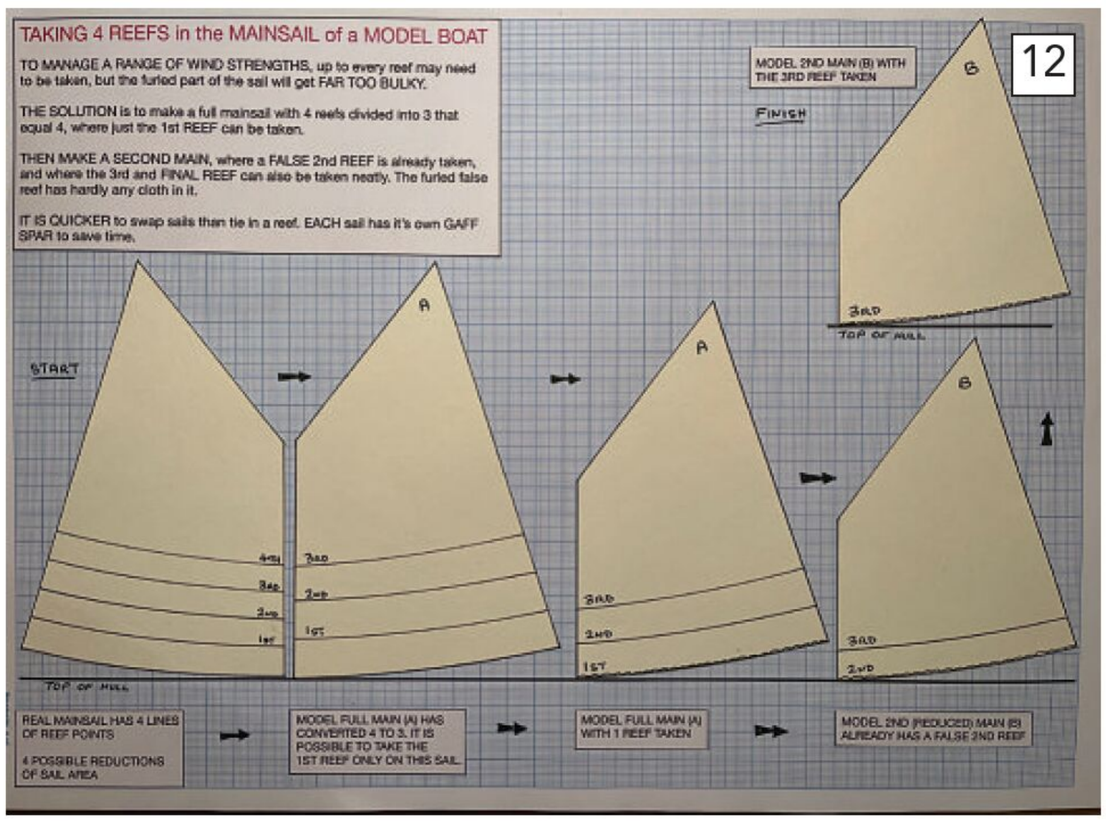
"I take sail making very seriously!"

Photo 9
Note here how the sail has been cut out and the hems and tablings (reinforcing panels) machine sewn, but the bolt rope is inside the hem and therefore not sewn along the head of the sail (just above the sail makers 'palm'). Elsewhere, the bolt rope is hand sewn to the outside perimeter of the sail, on the port side.

Photo 10
The sails of Galway hookers were, traditionally, very blotchy and inconsistent, so much so some areas could be almost bare. I think the 'cutch' must have been applied using mops while the sails were laid out on the ground, which if rough and stoney made a smooth sweeping action of the dye with a broom nye on impossible. Their rustic charm appeals to me enormously.

To achieve a similar effect on a model, a wash of water-based matt black is firstly applied and left to dry, then more paint is stippled on to simulate grime. My usual 50/50 Fabsil tent waterproofer and Barbour jacket wax compound for the dressing was this time coloured with oil paints, and along with the deep dark brown, the jib has a burnt Sienna bias, the staysail a burnt umber bias, and the main a yellow ochre bias. This dressing was applied after the bolt ropes but before the reef points were sewn in.

Photo 11
In this shot of the full suit of sails, note the long sweeps lashed outside



the green washboards. These never saw a lick of paint. I daren't sail with these fitted in case the mainsheet gets caught in them and capsizes the boat!

Photo 12

This diagram needs to be followed from bottom left moving anticlockwise. The main is huge because no topsail is used, so, the 1st reef is the equivalent of taking the topsail off. Note that as each reef is taken, the sail has been lowered by that amount (150mm each time). Not only is the sail smaller therefore, but the centre of effort and the heeling moment has been lowered too. This is then followed by three other reefs for increasing wind strengths. To be able to do the same for the model, it was necessary to divide the four reefs into three, with one mainsail full size and able to take 1st reef only, and a second smaller mainsail that starts at the 2nd reef, which is false, that can't be taken out. However, I can take (roll up) the 3rd reef on this smaller sail without too much bunching.

Generally, the forecast tells me which sail to set, but, as each main is permanently attached to its own gaff, if necessary, it's quicker to change a sail than tie up a reef. Most sailing is done with either the first reef (big sail reefed) or the second reef (small sail, not reefed).

Work on all this was a real labour of love and took about 200 hours!

"Work on all this was a real labour of love and took about 200 hours!"

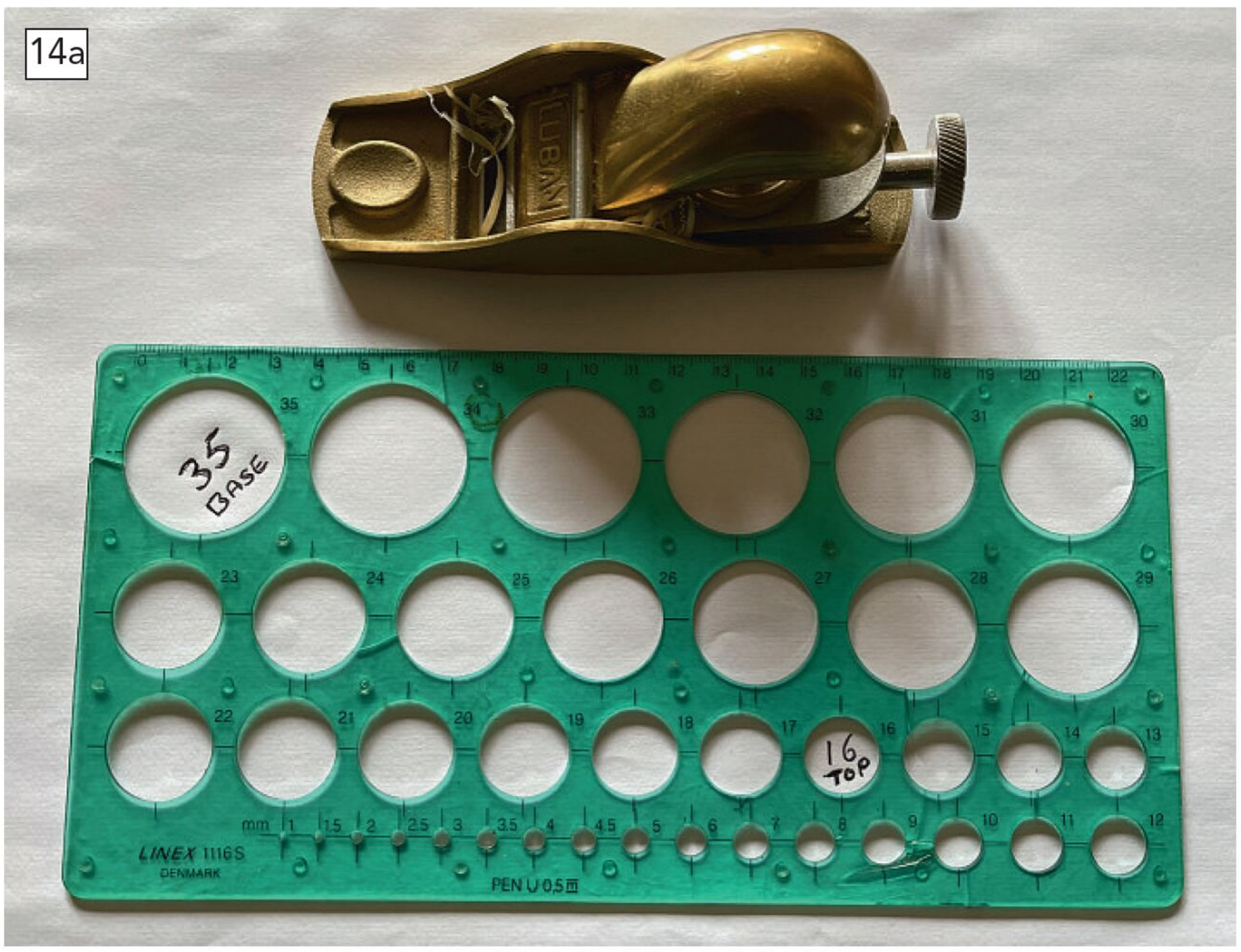
Photo 13

The suit of sails using the small mainsail.

Photo 14/14a

I haven't yet talked about the mast, but here we see the upper mast and the halliard arrangements. These were very stout, almost 12-inches (290mm) square at the partners; they're also well tapered to reduce weight aloft. I purchased a B&Q square section 'baulk' measuring 36mm x 36mm x 2400mm. I only actually needed 1600mm of this so could pick the best part and use the waste to make a dummy lower mast first. This has a steep reverse taper to make room for the control platforms.

I cut all the tapers with a cordless jigsaw. Above deck I now had a square section tapered mast. To



15

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17

bring this to an equal sided octagonal section, I used a tiny block plane to remove the four corners. From there it was a matter of hand sanding to a tapered circular cross section. I used a plastic card with hole diameters from 4 to 35mm as a gauge (see p.53), and I slipped this over the thin end of the mast, checking as I sanded down, until the taper ran from 16 to 35mm diameter and was properly round.

■ **Photo 15**
An Cailin Alainn launched for the first time, in calm conditions, with a light draught of air filling the sails.

■ **Photo 16**
Powering to windward under single reefed mainsail.

■ **Photo 17**
With the GoPro positioned so low, the February lighting on the water is wonderfully captured.

18

19

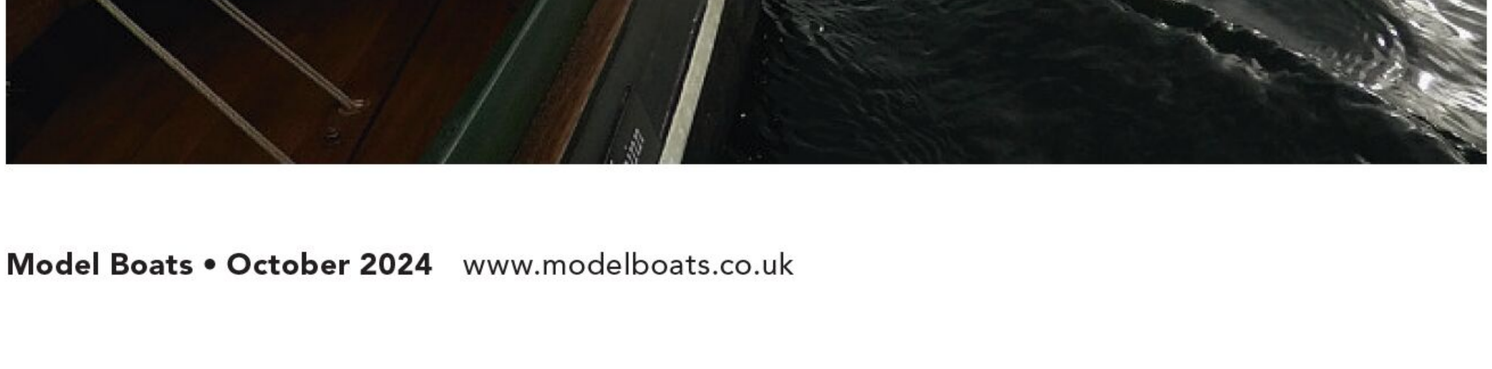


Photo 18
Sailing off the wind, which was coming in over my right shoulder. *An Cailin Alainn* is travelling much faster than it would appear in this photo; note the wake off her bow rather than her stern.

Photo 19
Again, with the wind in the same quarter, this close up shot shows how she will reach that control tower in about a minute.

Photo 20
Alongside, with the sails eased well out to relieve pressure from the beam wind, the cargo tarpaulin is evident here amidships. On the model this is stretched and stapled to a moulded polycarbonate foam layer, backed by thin ply, to tightly fit between the upright green washboards. Should a gust push her over a bit too far, therefore, water can only seep

in, not gush. Another plus to this arrangement is that wedged under the beam shelf and filling the hold are interlocking poly carb 'bricks' with a total positive buoyancy of some 35lb. Given that the total of non-buoyant materials/components making up this model weigh about 38lbs, but the remaining 45lbs is buoyant wood, it's my hope that should there be a total swamping she will remain at least partially afloat so that she can be recovered rather than actually sink. As I sail her in a lake that covers around 86 acres and is 20ft deep, you will appreciate why her buoyancy is lashed down tightly!

Photo 21

In this shot, illustrating foredeck detail, most of the deviations from the real boat can be seen. Firstly, the bow is knuckled forward to push the forestay, and thus the staysail, to frontward. This is so that the staysail can clear the front of the mast, and a boom or club can be used, great for achieving an efficient sail set.

Secondly, an enormous deck 'hatch' has been introduced. A lot goes on down there and so plenty of access is essential. Note the bowsprit plinth is bolted to the hatch, and the scuttle hatch has been moved back. This gives me handholds to lift the tight-fitting hatch cover that contains all the electronics.

Out on the water

Just as expected, the boat sails very well. I can't take the credit for this; I just followed a thoroughly good hull shape!

An Cailin Alainn's first four sailings were leak free, but on her fifth time out I suddenly saw the bilge pump discharging over the side. It would appear there was a sizeable leak high up on the transom. I could see where the water was entering the hull, but despite further investigations once I got her home, the exact source of the leak remained a mystery. All I could do was repack three or four suspect areas and apply two more coats of paint.

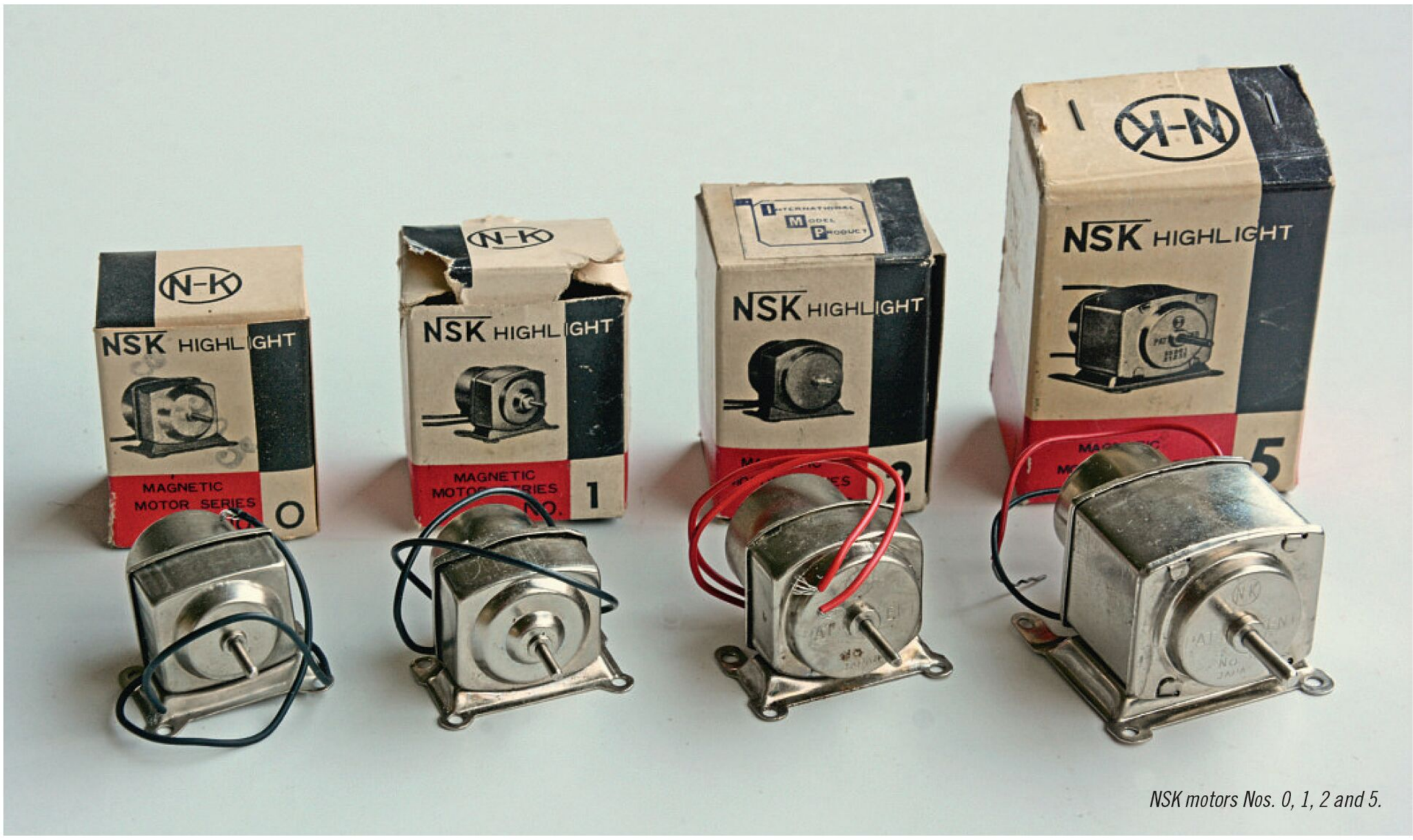
This seems to have cured the leak, at least for the time being. I'd wanted a credible wooden sailing model, but one complete with leaks to the hull is getting a bit too realistic! The plus side is the bilge pump apparatus clearly worked well, and water did not reach any of the electrics.

On outing number six, with wind speed rapidly increasing, I gybed with too much and shipped water over the aft gunwale – not so much as to run the pump, but enough to prompt getting *An Cailin Alainn* quickly back onto dry land while I changed her sails and put the third reef in. After that she sailed very comfortably in the decidedly choppy conditions on the large, exposed lake.

Further exposure

The model is now booked for display at the Midlands Model Engineering Exhibition at Warwick this coming October.

I also plan to post a video to YouTube, as I have some footage I've taken between bouts of flooding, rain and wind. My YouTube channel is called 'Radio Controlled period sailing boat models' and features videos of both my first boat, the Plymouth hooker *Jesse Oke* with her long deep keel and the Severn Trow *Ashmead*, as featured in this magazine early 2022 and twice shown at the Midlands Model Engineering Exhibition. ●



NSK motors Nos. 0, 1, 2 and 5.

Collectables catch-up

John Parker shares the stories behind his latest retro model boat motor finds

This month I have some notes on recent motor acquisitions that help to chart the often neglected history of these essential prime movers of our model boats.

NSK Motors

NSK was one of many Japanese companies making miniature electric motors for the toy market, alongside the likes of TMY and the better known KTK/Mabuchi brands. Cheap tinplate toys were identified as one of the products that could help Japanese industry recover after the devastation of World War II, and by the 1950s a further market developed for small electric motors to replace the clockwork ones commonly used in them, with the added bonus of the business generated by their insatiable appetite for batteries.

"Cheap tinplate toys were identified as one of the products that could help Japanese industry recover after the devastation of World War II, and by the 1950s a further market developed for small electric motors to replace the clockwork ones commonly used in them"

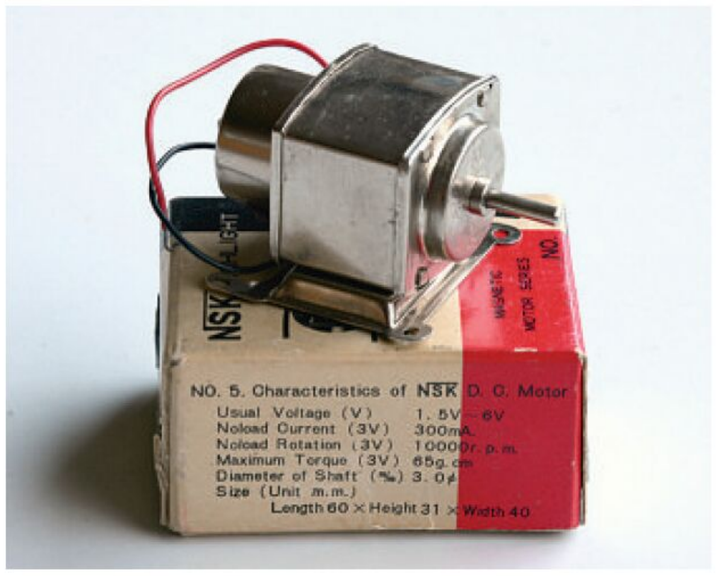
The NSK motor line up in the late 1950s consisted of six models of the same basic design but in six different sizes, identified as the NSK Highlight Magnetic Motor Series numbers 0 through 5.

Recently I was able to acquire examples of the number 0, 1, 2 and 5 of these now very rare motors via an Internet auction site, where four independent sellers coincidentally offered them for sale within days of each other; I am now in search of a number 3 and 4 to complete the set, but I don't rate my chances of finding them very highly. I did wonder if these motors could have been made by the present day NSK bearing company, but in answer to my email enquiry I was told there was no connection.

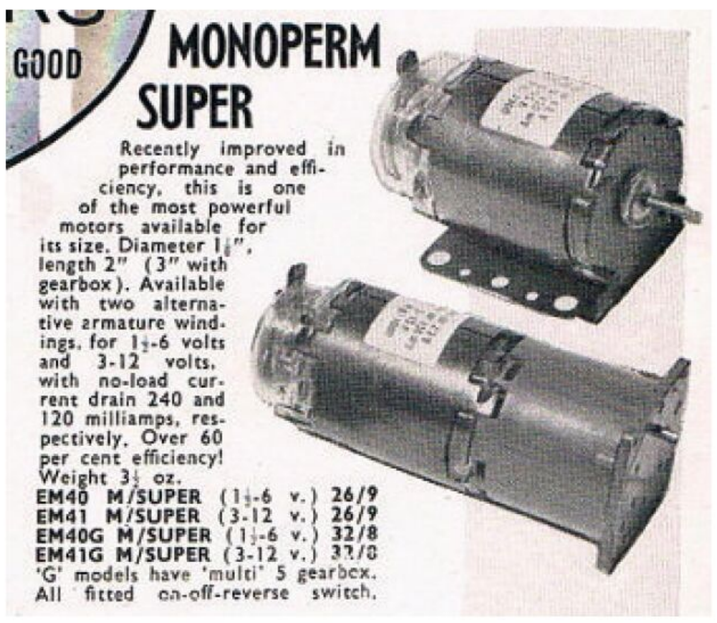
The casing of the motors is not tinplate but nickel-plated steel in

A line up of Monoperms from early (lower left) *through to late* (upper right) .

The range of Marx spares and accessories included brushes, a Cardan drive shaft, suppression gear and terminals.



A closer view of the NSK No. 5.



A 1963 advertisement for the Monoperm Super.

two pieces, front and back, held together with bent tabs, plus the base spotwelded to the underside of the front piece. The exception is the number 5, which has a separate front and back with a wrap-around section for the magnets to which the base is joined by bent tabs. Despite the cheap construction that was not intended to allow servicing, they present a much neater appearance than, for example, a Kako series motor, with the added advantage of being totally enclosed.

The six models cover most applications from the 0 (39mm x 23mm x 31mm and intended for 1.5-3 volts) in small increments to the 5 (60mm x 31mm x 40mm and intended for 1.5–6 volts). Their power, of course, is feeble compared to today's motors but would have been quite adequate for a small free-running model boat, such as an Ee-Ze-Bilt kit. The only advertisement I could find for them comes from a 1964 Swedish hobby catalogue, where strangely they are numbered 1-6 instead of 0-5.

"I am now in search of a number 3 and 4 to complete the set, but I don't rate my chances of finding them very highly"

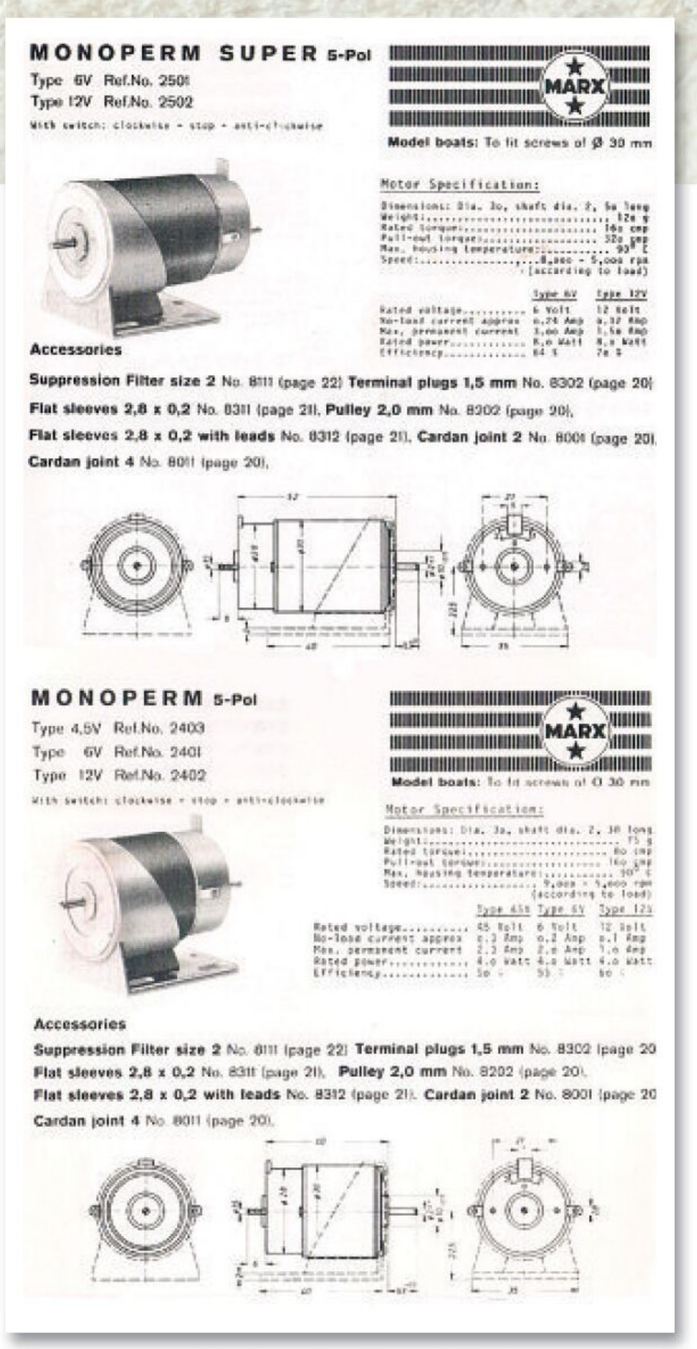
Monoperm evolution

I have recently added two Monoperms to my motor collection, chosen for their differing construction. Along with others already in my collection, they now offer me the chance to show what I think is the complete evolutionary line of these motors from the German Marx-Luder company. The Monoperm stood in the middle of the Marx-Luder range, defined by its nominal diameter of 30mm. The full range consisted of the Nanoperm (16mm diameter), Microperm (17mm), Milliperm (21mm or 22mm), Indoperm (26mm), Monoperm (30mm), Decaperm (40mm) and Hectoperm (52mm).

The earliest Monoperm I have has a clear plastic case incorporating an integral on-off-reverse switch. A black metal sleeve wraps around the housing to both hold it together and attach the metal mounting foot with twist tabs. Making its debut in about 1960, it was the first Marx motor to use a ring magnet, replacing the earlier Uniperm which used the more common twin rectangular magnet arrangement (see Flotsam and Jetsam, November 2023 issue). It was available in 3, 6 and 12-volt versions rated at 6 watts maximum input power and had a 3-pole armature. By 1963 it was being offered as the Monoperm Super, up-rated to 9W maximum input power, with a longer housing that measured some 50mm, and could be optioned as the G version with a "multi 5 gearbox". Advertisements still showed a clear case, but my example has an orange one and has soldered wires for connection. Another example is identical except for a light grey housing and what appears to be plug-in connections, as appear on a version built for Meccano at about this time.

The next major change came around 1967, with the motor now encased in a black metal tube, with plastic end caps held in with miniature roll pins, resulting in a much neater appearance. The mounting foot was changed to a plastic moulding with two small screws holding it to the output end and the switch deleted. There was a bewildering array of applications by this time, with 4.5, 6 and 12-volt versions made for the Marx outboards, Z-Drive and Sub-Drive units, Richard and Pile geared motors, Meccano Power Drive unit, and so on.

When a 5-pole version was made available, it was known as the Monoperm Special. Confusingly, when this modification was applied to the Monoperm Super it became the Monoperm Special Super, with a maximum input power of 18W. This was three times the original power, and years of refinement had seen the efficiency improve from 55% to 64%, or even 70% in the 12-volt version. The Special Super was presented in the new-style casing, but it appears the 3-pole models retained the old-style casing to the end of their production. Later, the



MONOPERM SUPER 5-Pol

Type 6V Ref.No. 2501
Type 12V Ref.No. 2502

With switch: clockwise • stop • anti-clockwise

MARX

Model boats: To fit screws of Ø 30 mm

Motor Specification:

Dimensions: Dia. 30, shaft dia. 2, 56 long
Weight..... 126 g
Rated torque..... 160 gmp
Pull-out torque..... 320 gmp
Max. housing temperature..... 90° C
Speed:.....8,000 - 5,000 rpm
(according to load)

	Type 6V	Type 12V
Rated voltage	6 Volt	12 Volt
No-load current approx	0,24 Amp	0,12 Amp
Max. permanent current	1,00 Amp	1,5A Amp
Rated power	2,0 Watt	2,0 Watt
Efficiency	64 %	70 %

Accessories

Suppression Filter size 2 No. 8111 (page 22) **Terminal plugs 1,5 mm** No. 8302 (page 20)
Flat sleeves 2,8 x 0,2 No. 8311 (page 21), **Pulley 2,0 mm** No. 8202 (page 20),
Flat sleeves 2,8 x 0,2 with leads No. 8312 (page 21), **Cardan joint 2** No. 8001 (page 20)
Cardan joint 4 No. 8011 (page 20),

MONOPERM 5-Pol

Type 4,5V Ref.No. 2403
Type 6V Ref.No. 2401
Type 12V Ref.No. 2402

With switch: clockwise • stop • anti-clockwise

MARX

Model boats: To fit screws of Ø 30 mm

Motor Specification:

Dimensions: Dia. 30, shaft dia. 2, 30 long
Weight..... 75 g
Rated torque..... 80 cmp
Pull-out torque..... 160 gmp
Max. housing temperature..... 90° C
Speed:..... 9,000 - 5,000 rpm
(according to load)

	Type 4,5V	Type 6V	Type 12V
Rated voltage	4,5 Volt	6 Volt	12 Volt
No-load current approx	0,3 Amp	0,2 Amp	0,1 Amp
Max. permanent current	2,3 Amp	2,0 Amp	1,0 Amp
Rated power	4,0 Watt	4,0 Watt	4,0 Watt
Efficiency	50 %	55 %	60 %

Accessories

Suppression Filter size 2 No. 8111 (page 22) **Terminal plugs 1,5 mm** No. 8302 (page 20)
Flat sleeves 2,8 x 0,2 No. 8311 (page 21), **Pulley 2,0 mm** No. 8202 (page 20),
Flat sleeves 2,8 x 0,2 with leads No. 8312 (page 21), **Cardan joint 2** No. 8001 (page 20)
Cardan joint 4 No. 8011 (page 20),

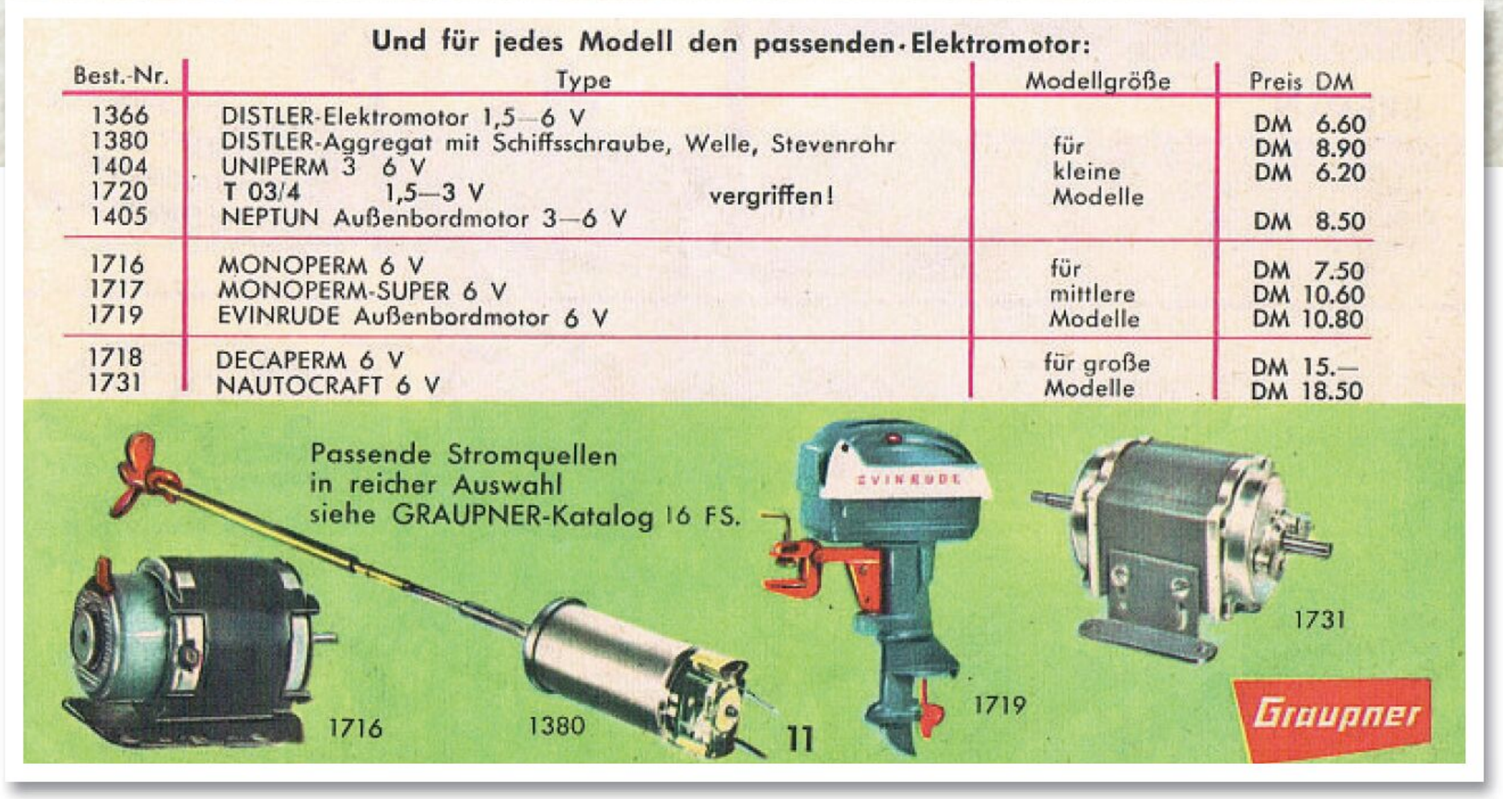
Monoperm specification sheet from 1978.

Two Graupner Nautocraft motors.

Special designation was dropped altogether as 5-pole armatures became standard throughout the range, and a reduction in the length of the motor casing made possible the re-introduction of a rotary on-off-reverse switch with no overall increase in length over the non-switched version.

Graupner Nautocraft

As the decade of the 1960s dawned, another German-made motor became available to the boat modeller, a dedicated marine type known as the Graupner Nautocraft. What made this motor particularly suitable for powering a model boat was its unique mounting arrangement, which enabled it to be fixed at any angle for alignment with the stern tube. It was quite a heavy unit (330 grams) and didn't break any records for power output, but what it could do was run quietly and smoothly for long periods without attention, while providing



The Nautocraft and early Monoperm motor shown in a 1961 Graupner catalogue.

"What made this motor particularly suitable for powering a model boat was its unique mounting arrangement"

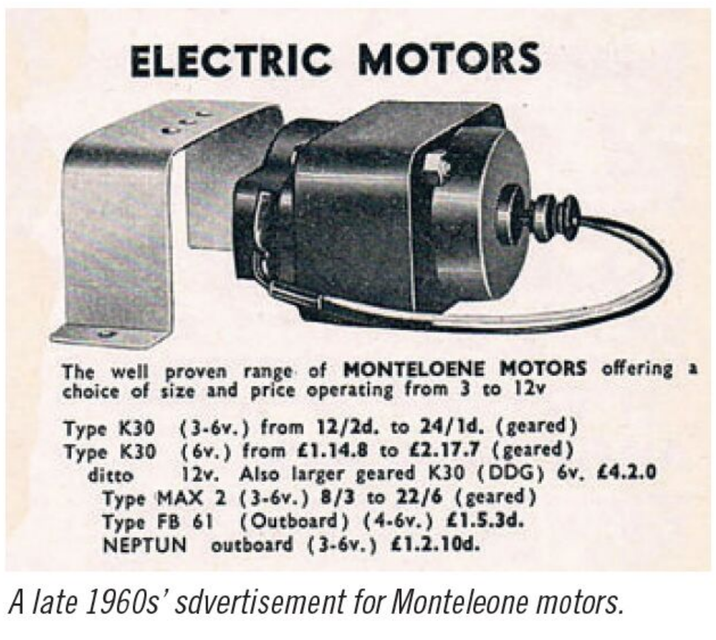
the torque needed to drive a large propeller. Operating voltage was 6 volts, maximum current 3.3 amps, no-load speed 4500 rpm, and efficiency around 45%.

It looked good too, with a green Hammertone casing and polished steel end caps, though these were prone to rusting if your engine room ever suffered flooding. Obviously suited to larger scale models rather than speedboats, its output shaft extended from each end of the motor, enabling tandem mounting of two motors in a narrow hull. At one end the shaft was stepped to suit differing sizes of coupling bore (3mm or 4mm). It came at a price though: the twin motor arrangement implied in one of the photos would have cost you £10.90 in 1972, or about £180 in today's money.

Monteleone

A fellow collector, R. Verden, sent me a photo of an unusual green coloured motor and its yellow box. It is a product of the Italian Monteleone company, now sadly defunct, that offered a range of outboard and inboard electric motors and ready-to-run boats in the 1960s. The photo depicts its K30 model, which I believe was the top of the line offering, available in 6-volt and 12-volt versions with a 10W power rating. A geared version was also available. Although occasionally advertised in the pages of *Model Boats*, I have never seen a model described that made use of these motors and they remain an interesting but obscure artefact. If I am able to gather sufficient information and images, I hope, in the future, be able to tell the history

A Monteleone K30 motor (image courtesy of R. Verden).



A late 1960s' sdvertisement for Monteleone motors.

"Although occasionally advertised in the pages of Model Boats, I have never seen a model described that made use of these motors"

of the Monteleone company and its products in these pages. ●

BOILER ROOM

Richard Simpson provides a ‘no nagging about lagging’ guide to boiler insulation

During our annual steam days at the Kirklees Model Boat Club I usually get through somewhere in the region of 12 to 13 steam tests. At this year’s event one chap, attending for the very first time, told me he’d learnt more in a day than he had done since getting involved in the hobby a couple of years ago – although, he brought a lovely steam lake launch with him, so he’s obviously getting the hang of things!

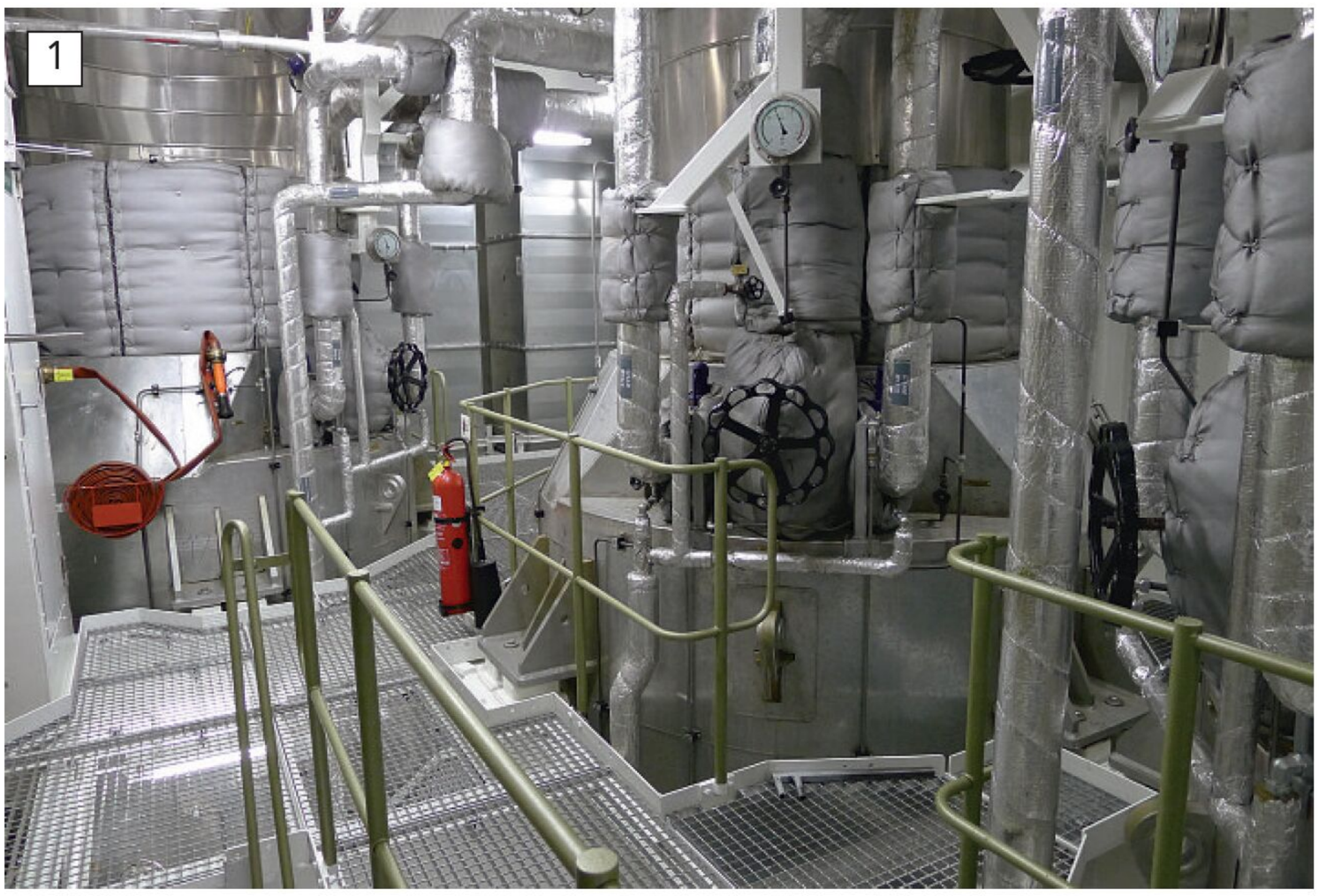
These steam days offer the opportunity to exchange thoughts and ideas with lots of like-minded enthusiasts and get a better understanding of what current thinking is. I also receive useful feedback on testing procedures and will often pick up subject matter ideas for future instalments of Boiler Room, usually prompted by questions posed.

A topic that came up at this year’s Kirklees MBC Steam Day concerned the lagging and cladding of boilers, and it was while discussing the various methods with a fellow club member that the conversation was brought abrupt to a halt when I was suddenly asked: “*Yes, but do I have to lag my boiler?*” A staggering simple but very good question!

Why lag?

Basically, lagging or cladding a boiler is nothing more than adding a layer of insulation to the outside shell. On real full-size marine boilers for main propulsion you might have up to a 300mm thick layer of insulation, held in place by thin plate work cladding attached to the outside of the shell,

“The conversation was brought abrupt to a halt when I was suddenly asked: “Yes, but do I have to lag my boiler?” A staggering simple but very good question!”



Standard marine practice is to insulate all surfaces of a boiler with thick rockwool lagging, clad in aluminum sheeting, as well as all steam pipework, valves and fittings. Wasted heat is directly related to wasted fuel.

and even on auxiliary boilers for diesel engine plant or diesel electric installations you would still find typically around 100mm of insulation covered in tin plate cladding. The boiler top plate and even underneath the boiler would be similarly clad, and the furnace would also be lined with a thick layer of fire brick, fire cement or a combination of both. This insulation is all there for the same purpose, *i.e.*, to control the flow of heat and hence minimise heat loss. Any heat that is going into the surrounding machinery space is wasted because it is not being used to heat the water. In real boilers that are running continuously during a sea passage any significant loss of heat is directly related to fuel costs so is crucial to control to maintain an efficient plant. This is why pipework, valve bodies, fixtures and fittings are all well lagged (see **Photo 1)**.

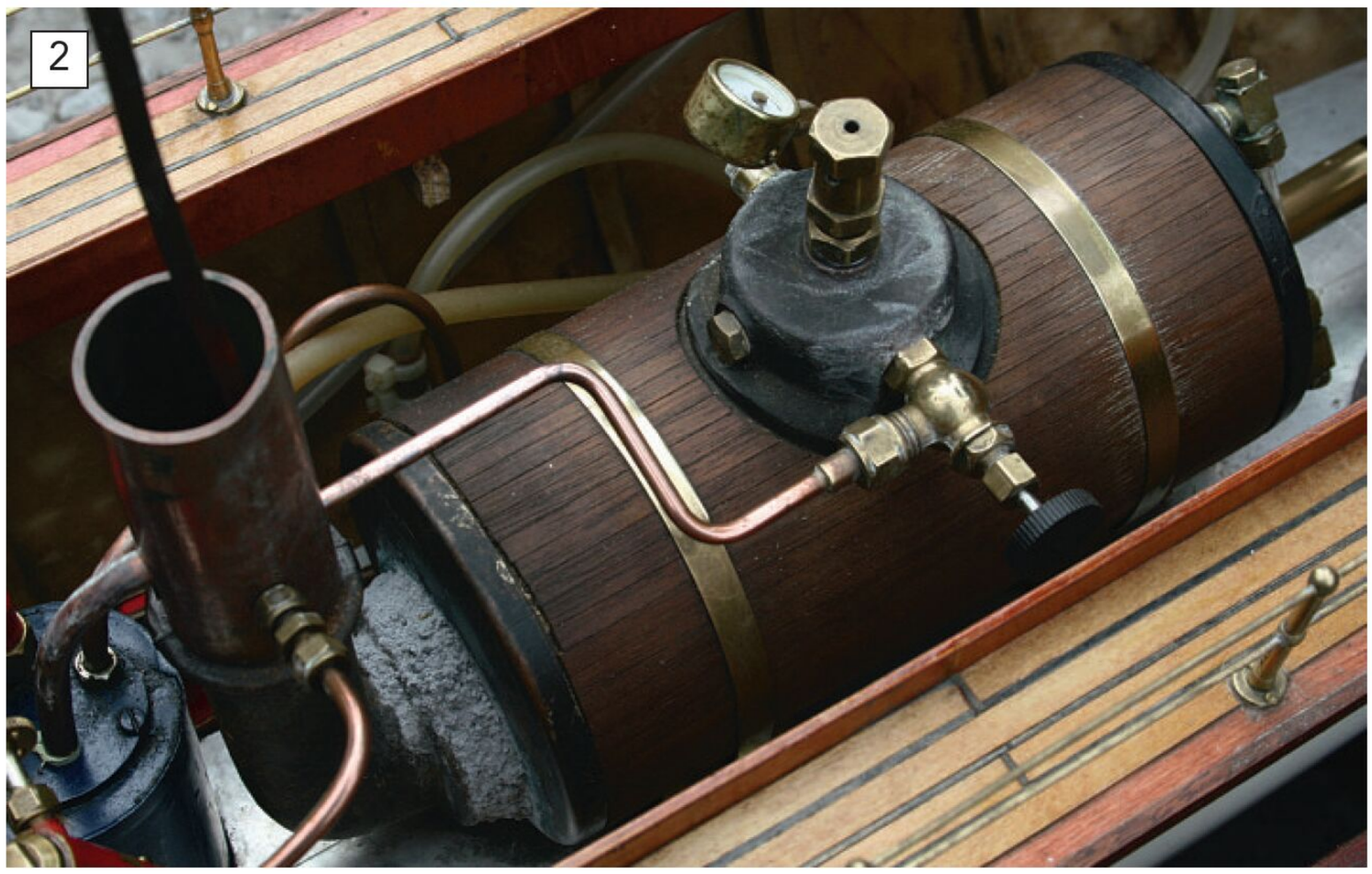
Likewise, any heat escaping into the atmosphere from a model boiler

“Any heat escaping into the atmosphere from a model boiler is wasted heat”

is wasted heat. This leads to lower efficiency of the boiler, meaning more fuel will be required to generate the steam that drives the engine, thereby adding to running costs (particularly if using disposable 100gm gas tanks, already the most expensive way to provide gas to a boiler) and potentially compromising duration.

Lagging options

When it comes to insulating the outside of our boilers, modern practice seems to almost universally favour wooden staves. I have seen older boilers coated with fire cement and then clad in thin tin plate. In the short term this is an effective, if not particularly attractive, approach, but cement tends to crack with age



If insulation doesn't need to be removed for hydraulic testing, a neat approach is to use fire cement. Some old boilers use this system all over the shell, held in place with plating or wood cladding.

For cladding, any old wood will do, from purchased planking to simple modelling strip wood lengths. You will, however, probably want to take into account the overall appearance of the boiler once it's finished and how you want the complete model to look.

and will eventually start crumbling away from the boiler. I've also encountered fire cement covered with plaster impregnated bandage; again, something that may work well initially but would inevitably become an unsightly mess as oil, soot and various other contaminants started to soak in. What's more, if a boiler is 3 bar litres or above its lagging must be removed every four years for a hydraulic pressure test, so this type of lagging would have to be redone just as frequently – a significant job. An alternative is to insulate the smoke box end of the boiler by applying the fire cement to the surfaces that will not need exposing for testing, as shown on the old Stuart plant illustrated (see **Photo 2**).

Nowadays there are basically two options readily available, and they are wooden staves or heat resistant cloth or paper.

Some modellers seem to think that staves are made from a special wood with particular heat-resisting properties, but that's just not the case. Any old wood will do; the main determining factor frequently being nothing more complex than availability (see **Photo 3**). It could be argued that denser woods transfer heat a little more readily and so lighter woods serve better for insulation, but you'll find the difference is negligible. I know because I've used both mahogany planks (see **Photo 4**) and square section pine (see **Photo 5)** to clad various boilers. Factoring in aesthetics can be just as important. For example, when aiming for a smarter look, I usually opt for a darker wood, such as mahogany, as this contrasts better with polished brass banding, as demonstrated by the John Hemmens Caton boiler illustrated (see **Photo 6)**.

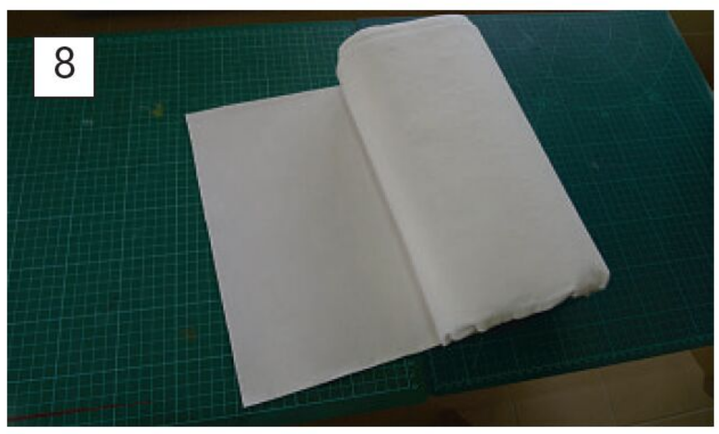
"Some modellers seem to think that staves are made from a special wood with particular heat-resisting properties, but that's just not the case"

This Miniature Steam Models Clyde Boiler was clad with the kit supplied planking. The wood hasn't been treated at this point and could be varnished or waxed to bring out the darker colour.

This Pendle boiler was clad with pine strip wood; a stash of which Richard keeps to hand for making frames and structures. With straight cuts around the fittings, this may not be the neatest of jobs, Richard concedes, but perfectly adequate for the job.

An old John Hemmens Caton boiler factory insulated with beautifully fitted mahogany planking. The circular holes cut around the fittings and the banding, hiding the ends of the planks, makes this as good an example of cladding as you are likely to see from any manufacturer.

Here, Mr. Mark Tommy shows just how neat a homemade insulation job can be. Again, circular holes around the fittings and chamfering the internal edges to get the external edges perfectly mated together makes for a superb finish.



Ceramic cloth and paper are both readily available in a range of thicknesses. Used on their own, the guide of 1mm of insulation for every 1-inch of boiler diameter works well, but a thinner layer beneath a wood cladding is also the Rolls Royce of insulation jobs.

The cladding process simply involves cutting wooden staves to length and, where necessary, shaping them to go around the fittings. Elastic bands can be used to hold them in place until you are finally ready to fit securing brass bands. Some modellers cut circular holes around fittings and then bevel the internal edges of the planks to achieve a perfect gap free surface finish, but that's all related to appearance and has nothing to do with effectiveness. Without doubt, however, this does produce beautifully finished cladding – an example of which, courtesy of Mr. Mark Tommy, is shown here (see **Photo 7**).

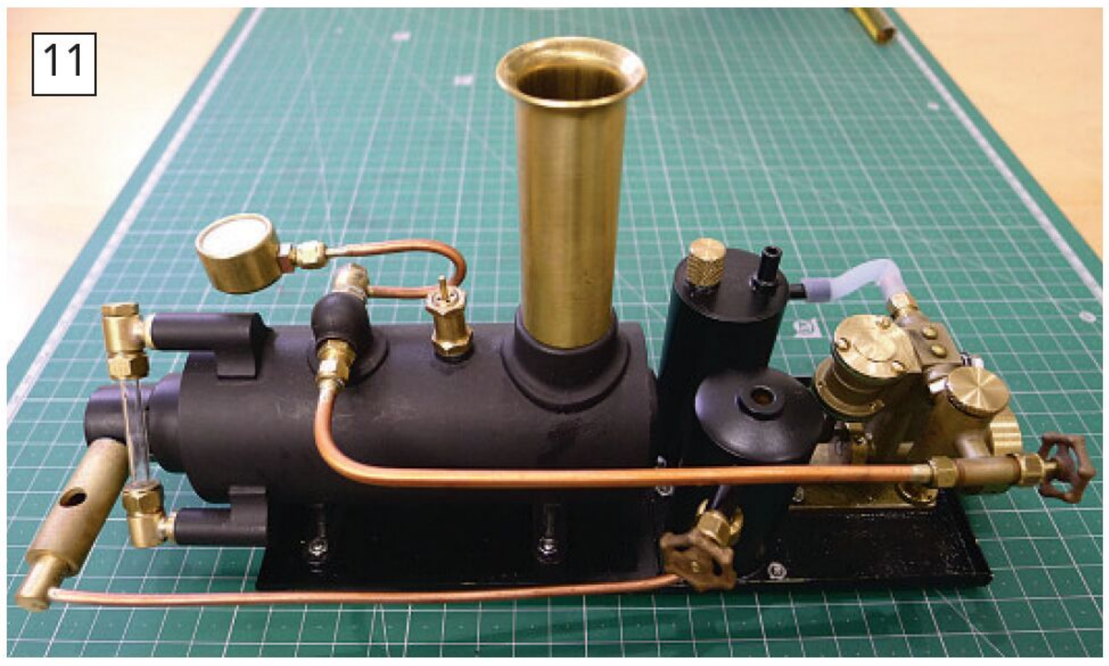
When it comes to the requisite thickness of your wood, its effectiveness can only really be determined once the boiler is in service. As a very loose guide though, I would go for wood of that's the same thickness in mm as the boiler is in inches diameter, e.g., for a 5-inch boiler use 5mm wood.

"When it comes to the requisite thickness of your wood, its effectiveness can only really be determined once the boiler is in service. As a very loose guide though…"

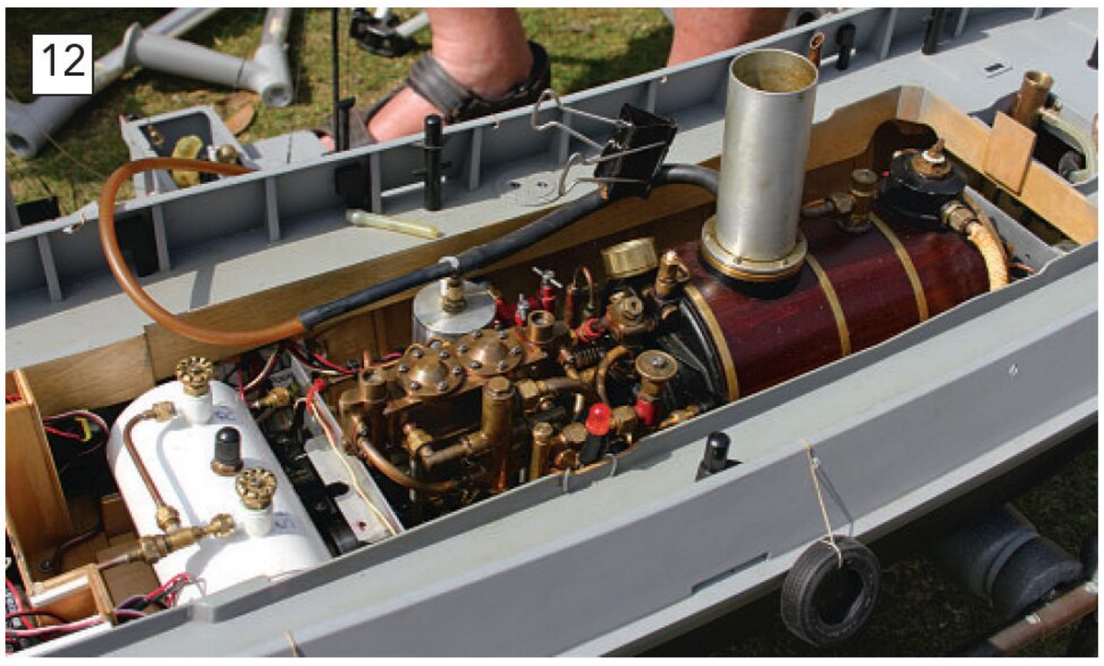
Another option to consider is the use of some sort of heat-resistant cloth or paper covering; this is available in roll form and can be purchased in thicknesses from 1mm up to around 5mm. I would tend to follow the same very rough guide mentioned above for wood in regards thickness if the cloth or paper is to be your sole insulating layer (see **Photo 8**). Once a sheet of this material has been cut to size it needs to be wrapped around the boiler shell and holes for the fittings punched into it. I've also used this type of insulation to line a Stuart Turner 500 type boiler casing during a restoration to replace the original (see **Photo 9**). This insulation may then need to be

This Stuart Turner Type 500 boiler was stripped down for a compete restoration, during which the original casing lining was replaced with ceramic heat insulating cloth, this being simply glued in place with heat resistant adhesive.

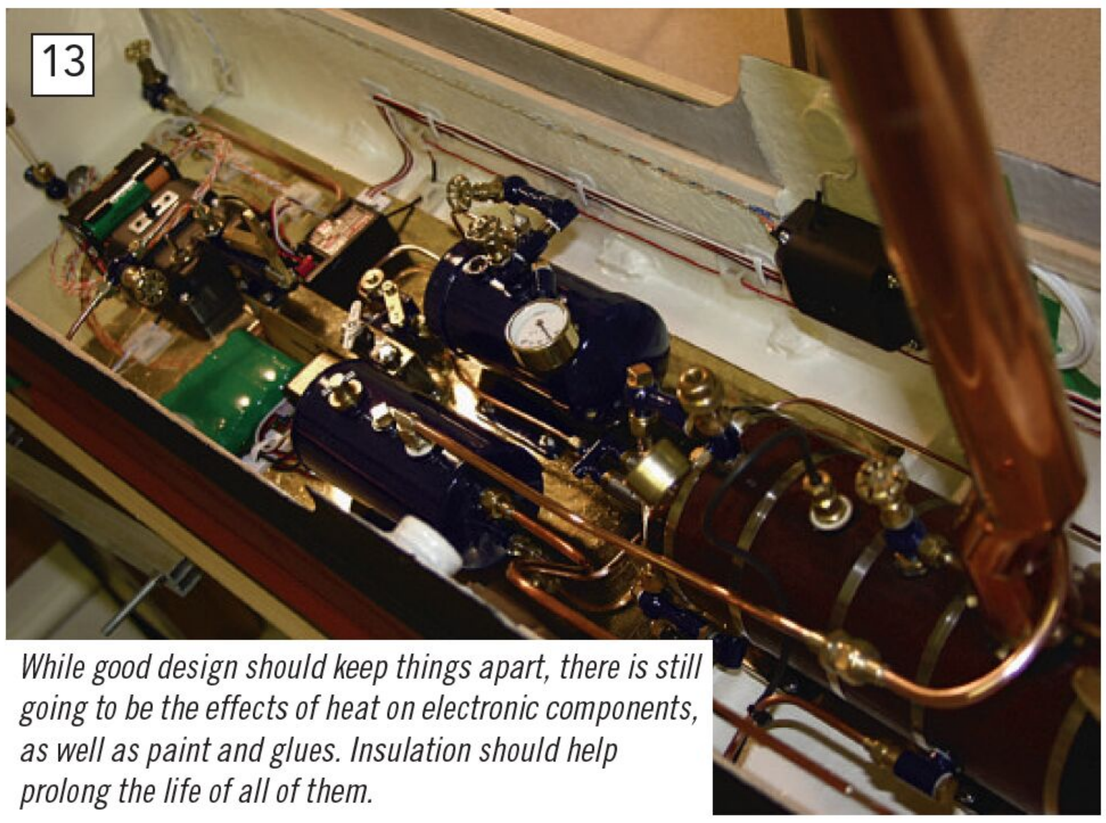
Again, the same boiler from Mark Tommy shows how ceramic paper glued to the boiler underneath the wooden staves gives not only a beautiful finish but also a very effective insulation system.



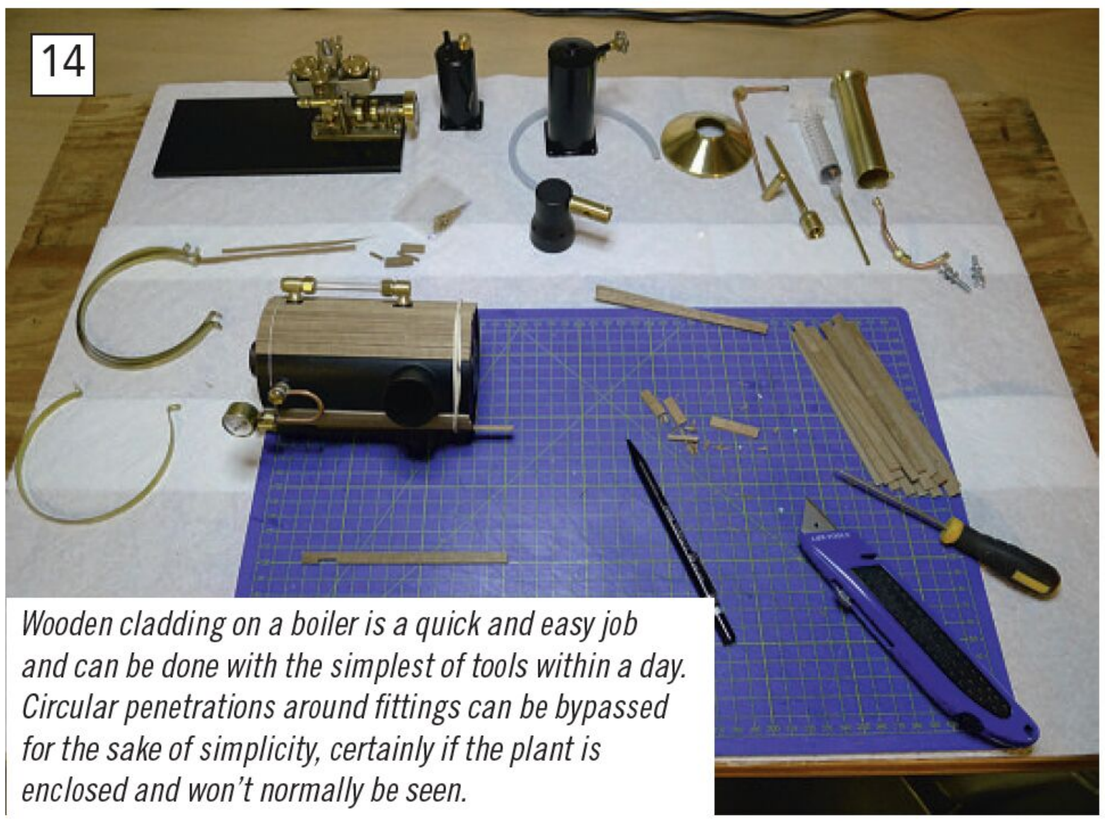
Small boilers, such as this Miniature Steam Models 2-inch Tyne plant, can get away with no insulation, as while there will undoubtedly be some heat loss from the boiler shell, this is likely to be inconsequential during the time the model spends on the water.



Getting your hands inside something like this requires dexterity and nimble fingers to avoid getting burned. Insulating all hot surfaces such as the boiler and steam pipework will save a lot of cursing and reaching for the first-aid kit.



While good design should keep things apart, there is still going to be the effects of heat on electronic components, as well as paint and glues. Insulation should help prolong the life of all of them.



Wooden cladding on a boiler is a quick and easy job and can be done with the simplest of tools within a day. Circular penetrations around fittings can be bypassed for the sake of simplicity, certainly if the plant is enclosed and won't normally be seen.

"If the boiler is covered by Volume 1 of the current Boiler Test Code its cladding will need to be removed every four years"

protected from spills or damage, so frequently a tin cladding is fitted over the top of it and held in place with either brass banding or even simply bound with copper wire. Again, a consideration here is that if the boiler is covered by Volume 1 of the current Boiler Test Code its cladding will need to be removed every four years.

A final arrangement I've seen is the fitting of a paper insulating layer then covered with wooden staves to hold it in place – again, beautifully demonstrated by Mr. Mark Tommy (see **Photo 10**). This belt and braces method is frequently used in larger boilers, such as might be seen in railway models, traction engines and showman's type engines, although whether the extra work it involves would actually have any additional benefits for below three bar litre boilers over just using a single system is debatable.

So, back to the original question...

The question was, of course "*Do I need to insulate my boiler*?". The answer is very obviously "*Of course not*". There are plenty of boilers fitted into model boats, in particular smaller ones such as the Miniature Steam Models Tyne plant shown (see **Photo 11**), that have no insulation fitted and I certainly wouldn't argue that they should be covered. However, there are some serious factors that need to be taken into account before deciding whether to or not to, and in regards the method used if we do. These, as outlined below, all provide food for thought:

- *Safety*
  All steam plant in model boats require frequent instances of sticking your hand inside to either fill things, empty things, open or close valves, *etc*, frequently into very tight spaces (see **Photo 12**). So, as there's a very high likelihood that your hands are going to come into contact with the boiler, keep some burn spray in your toolbox.
- *Efficiency*
  As mentioned, loss of heat to the outside of the boiler is heat that is not being used to heat the water. Currently (in mid-2024) a 100gm disposable bottle of gas will cost you somewhere in the region of £7-£9, and that bottle might only last a couple of mornings at the pond. I'm certainly keen, therefore, to avoid any waste.
- *Steam plant life*
  This is a particularly relevant consideration when it comes to steam plant in enclosed hulls, where heat lost from the boiler can cause serious degradation of surrounding components such as the hull, electronics, paint, glues, *etc*. Insulation here will protect those items and therefore prolong the life of the model (see **Photo 13**).
- *Boiler size*
  Heat loss is significantly greater in larger boilers, making it more important to insulate them. However, as with over 3 bar litre boilers you will need to remove the cladding for hydraulic testing every four years, I would highly recommend an insulation system that's easy to both remove and refit, such as wooden cladding. When you get to the even larger boilers than we normally see in model boats, wood starts to lose its effectiveness and becomes almost exclusively replaced by fire cement or cloth insulation, with maybe wood or metal cladding used to hold it in place. Bear in mind that although wood is a good insulator it is still a flammable material.
- *Aesthetics*
  There's no doubt that when it comes to model boats a polished or varnished wood finish with polished brass banding looks superb, so wooden cladding certainly has merit from that point of view. Tin and aluminum sheeting used to contain cloth, paper or fire cement can be polished up, but this tends to be used more for enclosed models where appearance is not a primary concern.

To sum up then, while it's not mandatory to insulate a boiler, all the advantages outlined in this article certainly make a compelling case for doing so. Boiler banding kits can be easily sourced from model engineering suppliers and stock wood is just as readily available as it's always been, so covering a boiler with wooden cladding is fairly straightforward and can be done with the most basic tools (see **Photo 14**).

Although most full-sized marine boilers are totally insulated for cost saving and health and safety reasons, with model boilers, certainly those found in model boats, the majority of modellers tend not to bother with an end plate. This is, of course, something that could be incorporated regardless of the system being used, but I'm not convinced it's worth all the additional work for possibly little benefit. I always insulate my own boilers with wood cladding, which I can highly recommend in terms of ease of fitting and future maintenance; and while a layer of ceramic paper underneath has never seemed worth the extra effort to me, it certainly wouldn't do any harm. ●

Your Models

Whether you're highly skilled and experienced or completely new to the hobby, you're definitely invited to this launch party! So please keep the contributions coming by emailing your stories and photos to **editor@modelboats.co.uk**

Even the box Lorenz has created especially Lucky is both well thought out build wise and beautifully finished.

Lucky

Following previous coverage of the Heng Long Tugboat 686 and seeing what others have done, I thought I would share my lighty modifiied version of this fun little boat.

LORENZ SCHMUKI
EMAIL

I absolutely adore what you have done with this basic little model boat, Lorenz. Although intricately detailed, in my eyes there's something delightfully Tintin-esque about it – the association probably being something to do with the lovely colour scheme you've chosen. And you've even turned the cleverly designed box you've built for it into a work of art – fabulous! Ed.

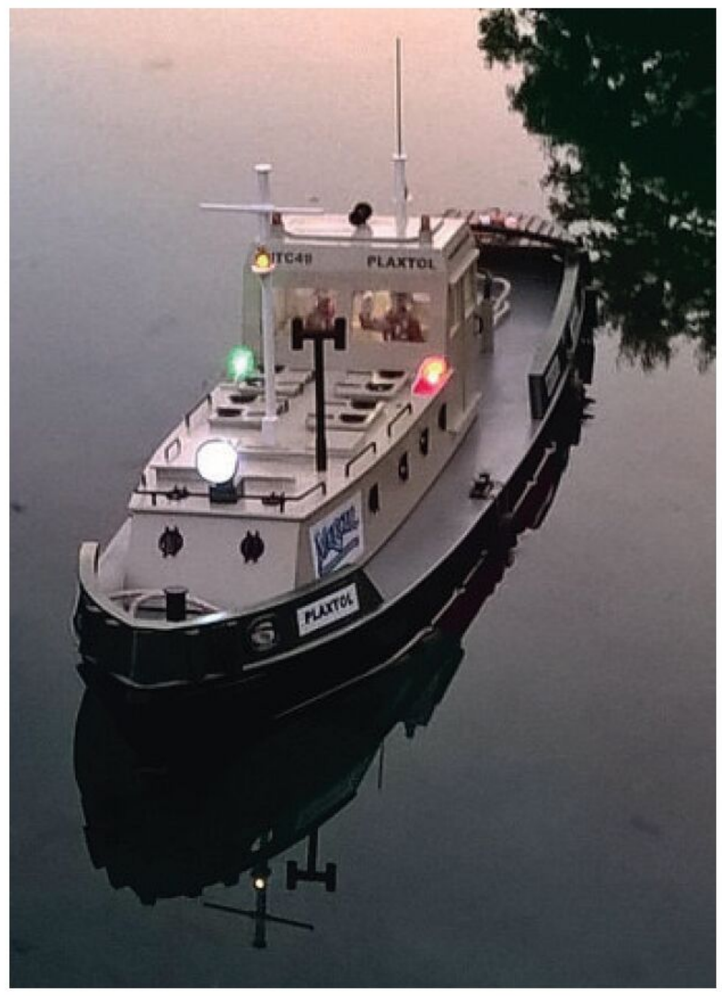
Lucky: Lorenz's gorgeously modified version of the Heng Long's little RTR (Ready-To-Run) Tugboat.

Plaxtol

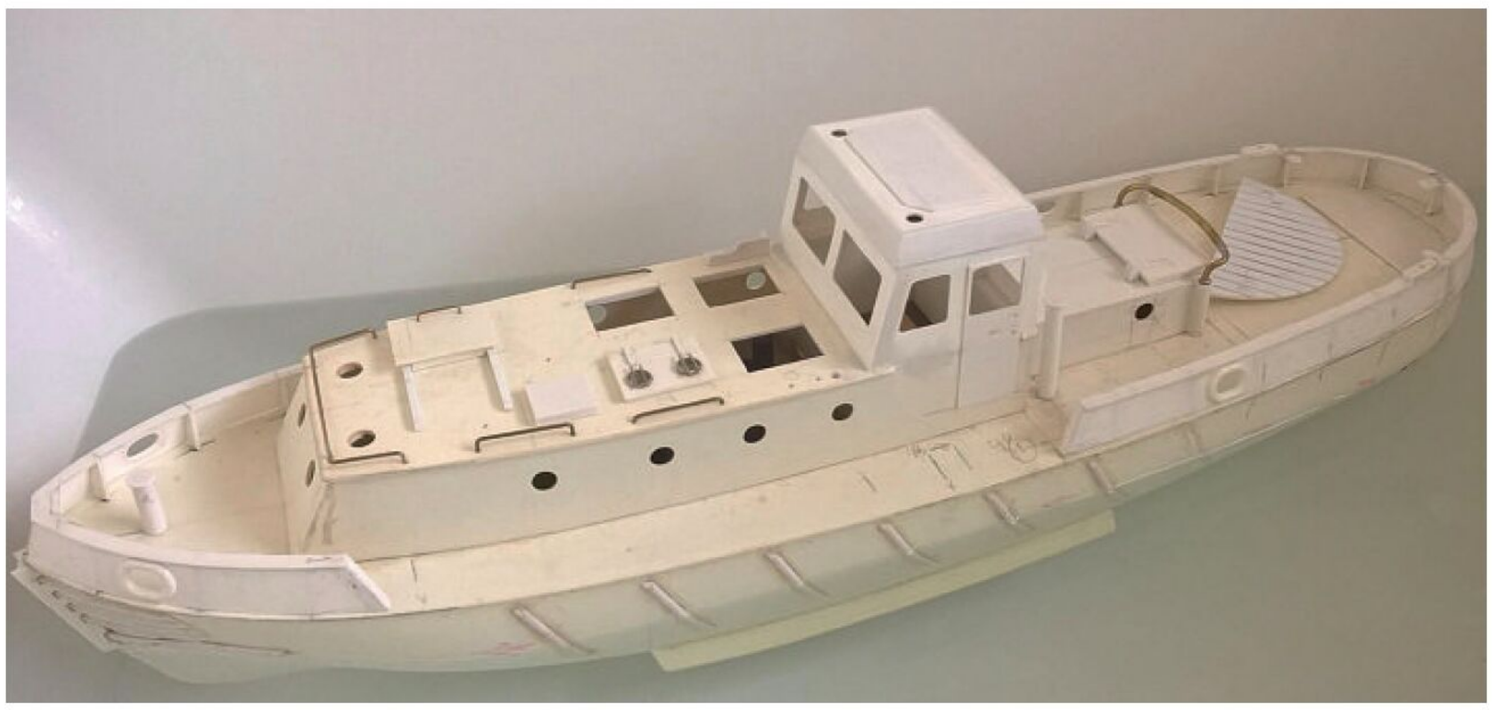
Someone gave me an oldish copy of Model Boats magazine still containing its free plan, which was a David Metcalf design for *Plaudit,* a Thames tug. I had previously built a model from one of David's designs, this being a "diesel powered shunter" called a *Motorflote,* which is a boat, of sorts and definitely not a locomotive! I found his plan for the *Motorflote* extremely detailed and well presented, and the plan for *Plaudit* was just the same, as was the first part of the build description. So, after acquiring the subsequent issues of MB via eBay for the remainder of the build descriptions, I purchased the vacuum formed styrene hull from Sarik Hobbies. Along with the hull which comes in two halves, was sufficient styrene sheet for scratch building the superstructure. The model is 1:20 scale, giving a hull length of about 700mm/28in.

The build went very well and was the first model that I had built which was entirely of styrene construction. For those not already aware, styrene is one of the few materials for which two pack epoxy adhesive *e.g.,* Araldite is unsuitable, as it doesn't adhere very well to the material, even when you've abraded the mating parts. However, on recommendation I used a UHU product called Plus Acrylit, which again comes in two parts (liquid and powder) but which when mixed readily adheres to the styrene. I believe that now Deluxe Materials market a product called Fusion which is also suitable for styrene for bonding in the prop shaft and (as I did) running a reinforcing bead along the joint between the two halves of the hull. Also, with the Deluxe Materials product you don't need to make use of the internet for a translation as the instructions are in English and not German, as is the case with the UHU product!

The only problem that I encountered was down to me trying to lever a quart into a pint pot. The footprint of the superstructure was not quite big enough for the twin 7.2-volt batteries, plus the Action



David, however, decided to put to finish his build as a fictious 'sister vessel' to Plaudit, which he's named Plaxtol after the picturesque village in Kent.



Working to Dave Metcalf's plans for the Thames tugboat Plaudit, David Marks added his own scratch-built superstructure to a vacuum formed styrene hull he purchased from Sarik Hobbies.

Electronics black boxes for remotely operating the various lights, horn, *etc*, and a sound unit for a single cylinder diesel engine. So, the solution was to extend slightly the superstructure aft of the main cab area.

While *Plaudit* is a model of an actual Thames tug, I decided my model should be a fictious 'sister vessel', which I've name call *Plaxtol* after a picturesque village in Kent. The similarity of the two names was quite deliberate, as many of the tugs working in what was the Port of London were operated by the Port of London Authority (PLA) and many of its tugs were given names commencing in PLA. So, in addition to *Plaudit,* there was *Plangent, Placard*, and *Platoon*, to name but three.

At the time that I built the model, *Plaudit* was still in use, albeit with a modified superstructure and the bold orange and green livery of the Nuttall Construction Group. For *Plaxtol* I chose a colour scheme a little easier on the eye and the logo is that of Mercer Transportation, nothing to do with waterborne transport in the UK but an America haulage company. The name was appropriate for me as my grandfather Harry Mercer was part of the Mercer family, who had a long association with the Grand Union Canal, mainly back in the days (pre-1929) when it was the Grand Junction Canal – the M1 motorway of its day, providing the main transport artery between the London docks and the manufacturing heartland around Birmingham.

I found the model a real pleasure to build, with plenty of areas involving some head scratching as I tried to work out ways to get many of the design features correct to the drawing,

DAVID MARKS
EMAIL

As you've done such a terrific job on this Thames tug, David, you've more than earned the right to personalise her. Fab work, and lovely to see her all lit up! Ed.

Maid of Kent

This is my model of the *Maid of Kent* ferry, which, after seven years, I've finally completed. She was built from plans obtained from the Maritime Museum to 1/8-inch to the foot (1:96 scale). Her plank on frame hull and superstructure were constructed from 1/32 ply, while the fittings are a mixture of items either scratch built by me from cast resin or sourced from Deans Marine and Ema. Liveried for British Rail (c.1954), she features a working bow rudder, bow thruster, lights and stern door. Both engines are controlled by an eight-channel radio.

The original ship measured 113.69m (373ft) in length, with a breath of 18.38m (60.2ft) and a draught 3.96m (13ft).

She was powered by two steam turbine engines, with double reduction gearing to two shafts resulting in 11.500 shp and affording a service speed of 19 knots and a maximum speed of 20 knots. She had the capacity for 1.000 passengers and 180 cars, which could be driven on and off

All hands on deck!

Kevin Castle's no attention to detailed spared model of the Maid of Kent.

via her hydraulic stern door (the first British car ferry to boast one of these), and the loading and unloading process was speeded up by the two turntables she was fitted with.

Of Dover registry, her callsign was GCHJ, and her official number 300433

Her initial cost was recorded at £1,67004, and she was launched on November 27, 1958, with sea trials then conducted in May 1959. May 27, 1959, saw her inaugural sail from Dover to Boulogne and service on this route commenced the following day.

Later, from March 2, 1974, to October 30, 1981, she operated various routes, including Weymouth to Cherbourg, Stranraer to larra, Fishguard to Rosslare, Harwick to Zeebrugge, Holyhead to Danloaghaire and Weymouth to Jersey and Guernsey.

Following this, on November 24, 1981, she laid up in Newhaven, and then on April 6, 1982, sold for £79,756 to Desguaces Aviles SA San Esteban de Pravia, arriving in Spain on April 21, 1982, where she was scrapped.

KEVIN CASTLE
EMAIL

What a magnificent model, Kevin – definitely seven years well spent – and what a picture-perfect setting you've chosen for your on the water shots, too. Clearly the Maid of Kent was kept very busy while in service, so I would imagine there will be those reading who remember having sailed aboard her on one or more of the many routes you've mentioned. Ed.

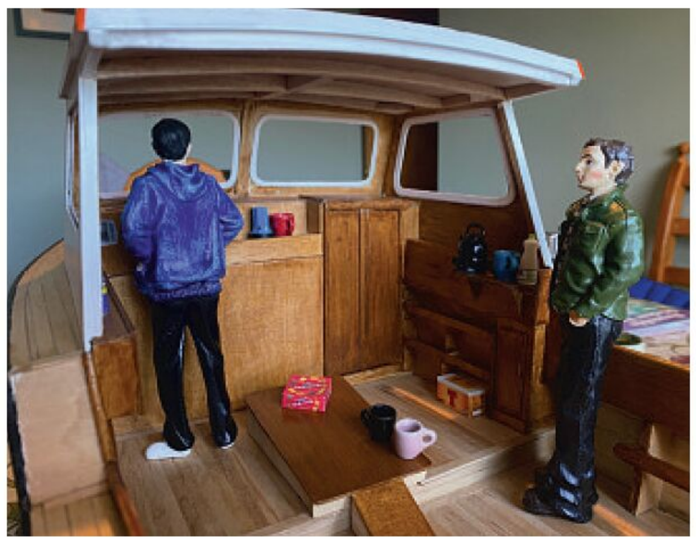
African Queen

I'd just like to say thank you to Richard Simpson for hands-on kit review of Billings Boats' *African Queen* featured in the magazine and especially for all the additional (300 odd) build sequence of photos he posted on the website. This is my finished model, and I couldn't have done this without his help!

PETER ROOKE
EMAIL

I know Richard will be delighted to have been of help here, Peter. As for your version, I'm so impressed, not just with the build quality but with all the little finishing touches you've added, like that smiling, overalled and cloth capped, figure (judging by the realism, guessing he's a customised 3D-printed item) and the ample, even for a long trip down the Ulang, supply of gin. To quote Charlie Allnut: "Nothin' a man can't do if he sets his mind to it'!. Ed.

Peter Rooke's build of Billing Boats' 1:12 scale kit for the African Queen, featuring some really neat little extras!



Dragonfly: John Gillies first ever R/C build, based on Ray Wood's plan for Osprey.

Osprey-inspired *Dragonfly*

I thought I'd let you know how your excellent magazine and especially a certain article inspired my first R/C build. Ray Wood's plan for *Osprey* had me fall in love, and so, having for years wanted to tackle a project like this, I finally took the plunge. The accompanying build guide had all the detail I needed, and my skills developed as I progressed. I made a few alterations to the cabin, used coffee stirrers for deck planking and added a few little touches of my own.

I think she turns out pretty good!

I have now subscribed to the magazine (both hard copy and digital format). Well worth the money. Keep up the good work!

JOHN GILLIES
EMAIL

Thanks for your lovely email, John. If you hadn't told us, I would never have guessed this was your first ever R/C build. And while I know Ray will be very pleased to learn his design inspired you, I'm sure that, in turn, your outstanding example of what can be achieved will prove equally inspiring to others. Ed.

Lady Delyth

I thought I would share my first attempt at model boat building with you. This is basically a Billing Boats' Boulogne Etaples but with a few of my own personal touches incorporated.

I used waterslide transfers for the Lady Delyth (I named the boat after my wife) script, safety signs, *etc*, and, to add life, I scratch-built some polymer clay figures to suitably positioned at work onboard. I decided not to follow the instructions with a flat deck as I wasn't convinced this would keep the inside dry, so I've added raised coaming. The boat has a sound module fitted, and I've constructed a hinged hatch and proper open louvres on the engine room to let the sound out. The hinged hatch has a tray fitted to the underside to catch any splashes.

The keel also has a removable aft section, milled from aluminium, so

All hands on deck!

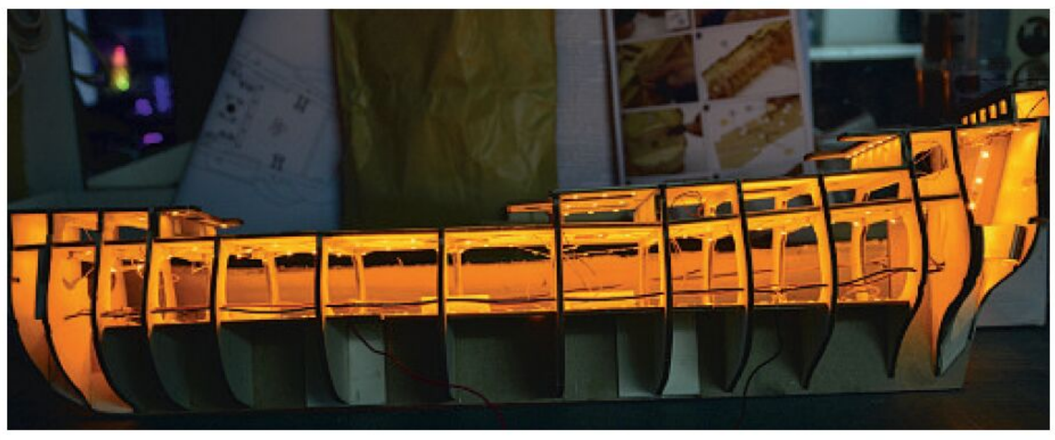
The Lady Delyth, constructed by Eric Edmonds from the Billing Boats' 1:20 scale Bologne Etaples kit but beautifully personalised with lots of added detail and named for his wife.

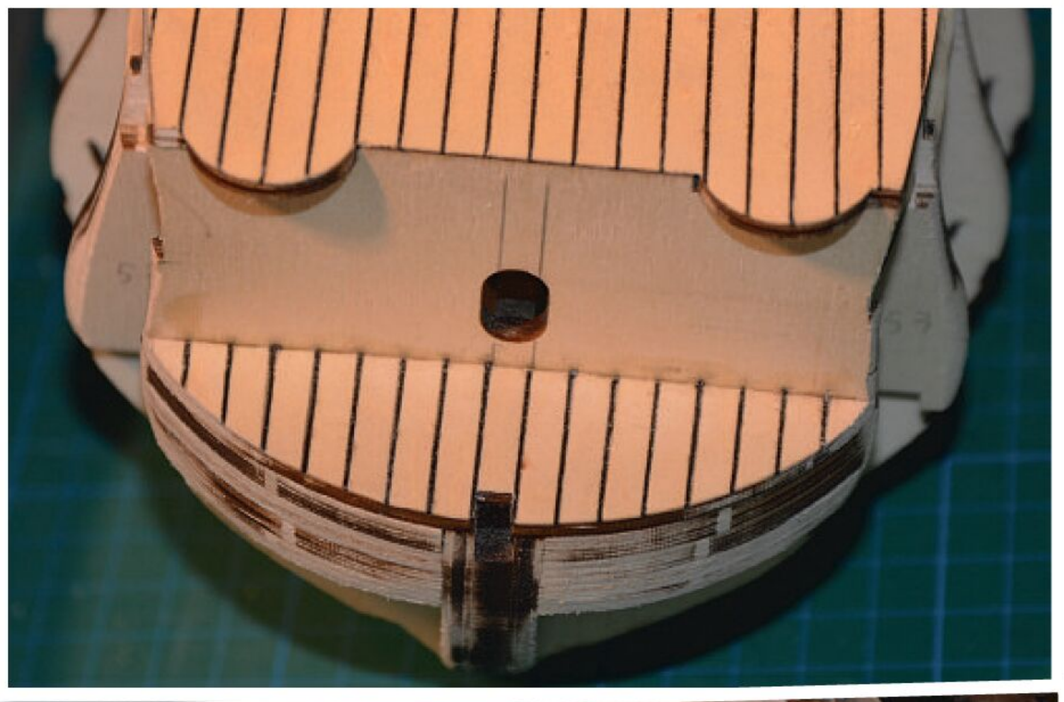
that the rudder can be removed for maintenance.

So far, I've only given her a 'test tank' flotation trial, but I can't wait to sail her properly.

ERIC EDMONDS
EMAIL

A lot of modesty going on here – this is so much more than an 'attempt, Eric'! I would have been impressed enough if you'd shown us a successful first 'standard' kit build, but the fact that you've gone so much further and customised the model to make it totally your own (right down to those creating your own suitably posed and attired polymer clay figures) is amazing. Expect lots more compliments when you get her out on the water! Ed





John Alliprantis shares work in progress pics of what, when finished, will be his own very skilfully customised version of OcCre's 1:86 San Felipe.

San Felipe

Following your kind inclusion of my customed build of Billing Boats' *Cutty Sark* in last month issue, I thought I would share a few photos of work in progress on my next project, OcCre's 1:86 scale kit for the *San Felipe,* which I will customise with my own little twists.

As you will see from my photos of the hull, I have already made a start with the installation of lighting. I do still have to open up some holes for gunports and windows over to the bow and stern as I've done on the upper stern deck.

The hardest part will be making the windows and doors because the kit comes with solid metal ones, but I intend to craft mine from wood, with the windows being transparent to show off the illumination the lighting system will afford.

There's a lot of work to do, but after some months I believe this will be an amazing model!

JOHN ALLIPRANTIS
EMAIL

Thanks, John. I'm sure we're all looking forward to seeing the end result. Ed.

Your Letters

Got views to air or information to share? Then we want to hear from you!

Letters can either be forwarded via email to **editor@modelboats.co.uk** or via post to **Readers' Letters, Mortons Media Group, Media Centre, Morton Way, Horncastle, Lincs LN9 6JR**

I won!

The winning entrant in our July 2024 prize draw, Neil Mroz, with his Billing Boats' pre-production sample kit for Carli prize.

Here's a picture of me with my prize from the July 2024 draw [the Billing Boats' pre-production factory sample of *Carli}*. It's the first time I have ever won anything. To be quite honest, I'd always had my doubts about whether draws like these were genuine, and I'm probably not the only one, so I feel the least I can do, aside from saying a big thank you, is to share proof you can indeed get lucky.

NEIL MROZ
EMAIL

Thank you so much for this lovely letter and photo, Neil, and you are so welcome! Before starting work on magazines, many, many moons ago now, I, too, was very sceptical about whether anyone ever won anything in competitions/prize draws, so it's always such a pleasure when I hear from readers delighted with to have actually done so. Lovely Routemaster on the shelf behind you in your picture, by the way – takes me back to the days when I edited Model Collector magazine. Ed.

Sticky notes

In Colin Laugharne's *Roy Charles* article featured in last month's issue I was interested to see a reference to a wood glue, which was described as being "*made up from a white powder, mixed with water. The tin bore an illustration of two horses pulling something apart*". I now have before me a tin which bears this logo above the name Cascamite powdered resin glue, manufactured by Leicester, Lovell & Co. Ltd, with an address near Southampton. This tin hasn't been opened in many years but appears to be about half full - and it rattles when shaken!

On the subject of ancient adhesives, I remember one which I believe also came in a tin partnered with a bottle of acid, which had to be dribbled onto one part before it was joined to another. I think it may have been called Aerolite 306 and marketed around the late '50s/early '60s. Possibly Cascamite would have been somewhat later?

I also have in my collection a copy of *The Grey Seas Under* mentioned and illustrated in the same article. The text states the vessel was built in Scotland but 'found' in Germany. These details may well be correct, as the design 'fits' a class of tugs built for the Royal Navy during the Great War. Some years ago, you ran an article about this type: a company had produced a plastic hull for model builders - one having been put on display at a big exhibition (Alexandra Palace?) in London.

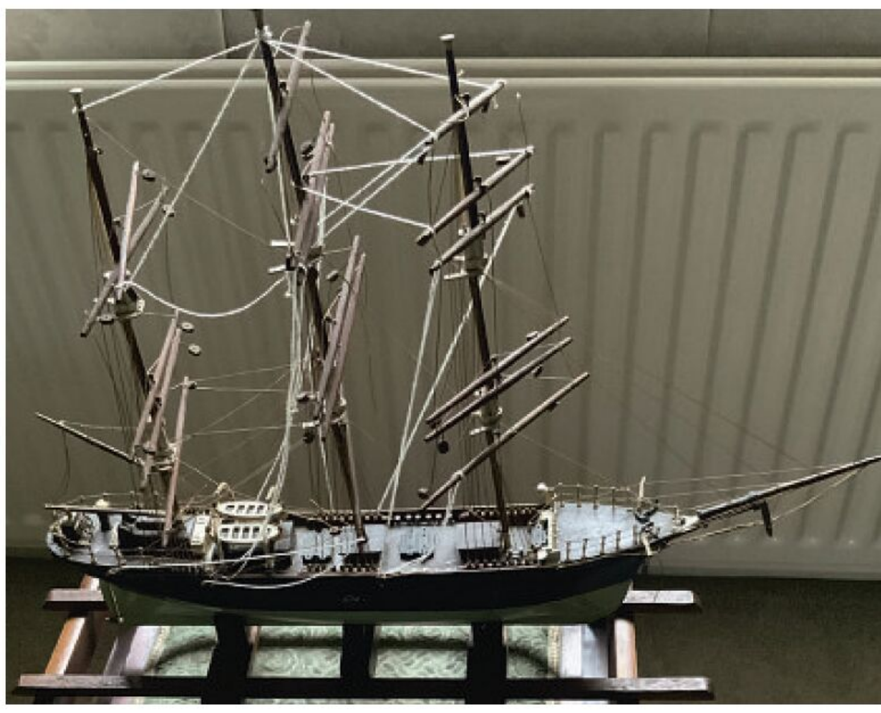
TERRY KETLEY
EMAIL

Thanks so much for your really interesting letter, Terry. Being a bit of a research geek, I also tried to identify Colin's mystery glue and came across some images featuring old tins of a 'powered casein' glue called Casco (also featuring two harnessed horses attempting to pulling something apart). However, it's probably more likely that the product you describe is the one recalled by Colin, as the tin in my pic flag up a US patent.

I also found a link sharing some fascinating info on Aerolite 306: CIBA Aerolite (marcosxylon.com) https://marcosxylon.com/technical-specification/ciba-aerolite-300/ - although ads for this seem to show it in tubes rather than tins.

Perhaps someone reading can tell us more, both about these glues and that plastic hull. Over to you, chaps! Ed.

Mayflower mayday response



Alan Craig kindly suggests a possible option for Earle Ryan, who last model appealed for help with re-rigging this model of the Mayflower.

In the September 2024 issue there was a letter from Earle Ryan asking for help with the rigging of his model. Recently, while testing a boat at the Orpington model boat pond I got talking to a member of the Society

of Model Shipwrights and they would seem to have exactly the kind of expertise that Mr. Ryan is looking for. It might be worth making him aware of their existence and referring him to their website at https://www.modelshipwrights.org

ALAN CRAIG
EMAIL

Much appreciated, Alan. Hopefully by making contact with www.modelshipwrights.org someone will either be able to either assist Earlie or point him in the right direction of someone who may be able to tackle the task on his behalf. Ed.

Festival on the Lake

On Saturday, August 17, Windermere Model Boat Club joined forces with Windermere Jetty Museum to host an event entitled 'Festival of the Lake'. I am delighted to report this was very well attended by club members and the general public alike. Children were given the opportunity to 'have a go' with radio-controlled boats, as well as yachts and various other craft taking to the water. We also had a comprehensive display of members' boats on show.

PETER KOCH-OSBORNE
EMAIL

Could there be anything more idyllic than 'messing about with boats' on a glorious summer's day in the beautiful Lake District! Congratulations to you all for putting on such a fabulous, family-friendly event. Ed

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You can, of course, order you copy of the November 18, 2024 issue, which goes on sale at all good newsagents from Friday, October 18, 2024, now, but why not treat yourself to an annual subscription, as monthly copies will then be delivered directly to your door.

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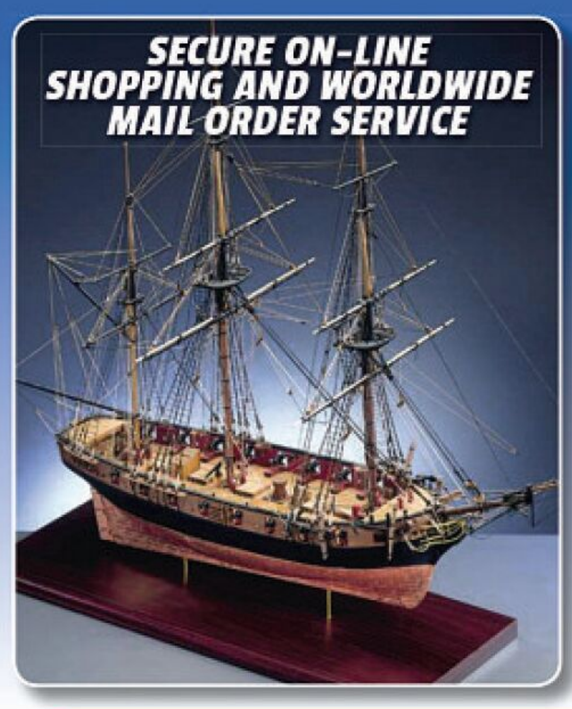

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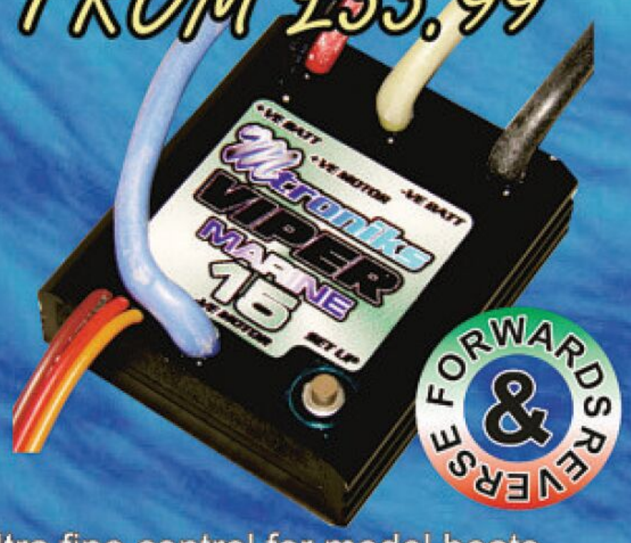

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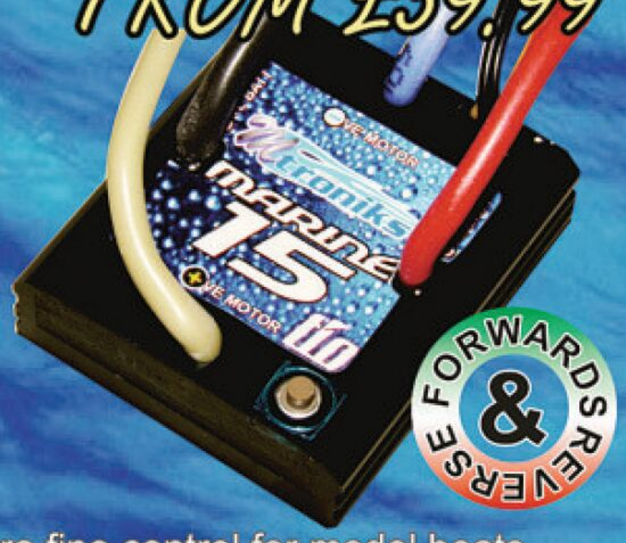

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